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Seventeenth Annual Report

OF THE

State Board of Health

OF THE

STATE OF OHIO

FOR THE

Year Ending December 31st, 1902



SPRINGFIELD, OHIO:
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1904

LETTER OF TRANSMITTAL.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, April 15, 1903.

To His Excellency, GEO. K. NASH, Governor of Ohio:

SIR:—In accordance with Section 8 of an "Act to create and establish a State Board of Health," as amended May 7, 1902, the accompanying report, which is for the fourteen months ending December 31, 1902, is herewith submitted.

Respectfully,

C. O. PROBST,
Secretary.

MEMBERS OF THE OHIO STATE BOARD OF HEALTH.

BYRON STANTON, M. D., *President*, Cincinnati.....December, 1902.
J. C. CROSSLAND, M. D., *Vice-President*, Zanesville....December, 1903.
WM. T. MILLER, M. D., Cleveland.....December, 1904.
FRANK WARNER, M. D., Columbus.....December, 1905.
W. C. CHAPMAN, M. D., Toledo.....December, 1906.
JOSIAH HARTZELL, Ph. D., Canton.....December, 1907.
DARWIN G. PALMER, M. D., Geneva.....December, 1908.
C. O. PROBST, M. D., *Secretary*.

December, 1902, Dr. Byron Stanton was reappointed.

GENERAL REPORT.

This is the seventeenth annual report of the State Board of Health. The law requiring an annual report to be submitted on or before the first of November of each year was changed so as to make the report correspond to the calendar year. This report, accordingly, is for the period of fourteen months ending December 31, 1902.

PERSONNEL OF THE BOARD.

The term of office of Dr. Wm. T. Gemmill, of Forest, having expired, Dr. Darwin G. Palmer of Geneva, was appointed to fill the vacancy. The term of office of Dr. Byron Stanton of Cincinnati, expired December 13, 1902, and he was reappointed for a term of seven years.

MEETINGS.

Five meetings were held during the year. A report of the proceedings will be found farther on. At the second meeting a conference was held with the superintendents of public schools, the subject of School Hygiene being considered. The twelfth annual conference with local boards of health was held in connection with the January meeting of the Board. More than four hundred delegates were present. The proceedings were published and sent to the various local boards of health.

SMALLPOX.

Much of the Board's attention has been directed to the smallpox epidemic, which has continued to prevail, as predicted in former reports. No efforts have been spared to bring the epidemic under control. The local health authorities, assisted by the Board, have succeeded in stamping out the disease; though in some cases not until after a prolonged struggle. But the epidemic has acted like a prairie fire, put out in one place only to break out in another.

That this experience will be repeated for several years to come is extremely probable. In spite of the fact that smallpox has been present in nearly one-half the counties of the state at all times during the past two years, a large number of unvaccinated people may be found in most communities. This is even true for many cities and villages where smallpox has had considerable prevalence. On account of this there have

been, and are still likely to be, repeated reintroductions of smallpox in the larger cities. In but one, Cleveland, has the disease assumed serious proportions. This will be referred to more fully later on.

The neglect of vaccination seems to be due more to indifference than to active opposition, or a firm belief in its inefficacy in preventing smallpox. An attempt was made, it is true, by a few misguided people to organize an anti-vaccination society in the capital. Suit was brought in the Common Pleas Court to compel the board of education to admit to school an unvaccinated pupil, contrary to its regulations. After very careful consideration the court decided in favor of the board of education, and nothing further has been heard from the anti society. Many opposed to vaccination do not doubt its protective power against smallpox; but on account of the bad results, reported from time to time in the newspapers, following vaccination, and because the present epidemic of smallpox has had an unusually large number of very mild cases, they take the chance of getting smallpox rather than risk the danger of vaccination. This danger is more fancied than real, and a very small per cent. indeed have any harmful results from vaccination. With pure vaccine lymph, which may now be easily obtained, surgical cleanliness in the operation, and protection of the vaccine wound against external infection, the danger of harm from vaccination is exceedingly slight.

Cleveland, as before stated, suffered severely from smallpox during 1902. Their experience offers the most convincing proof of the efficacy of vaccination in the prevention of this disease. This is well set forth in an article published in the Ohio Sanitary Bulletin, the official publication of the Board, which was as follows:

How Cleveland Was Rid of Smallpox.

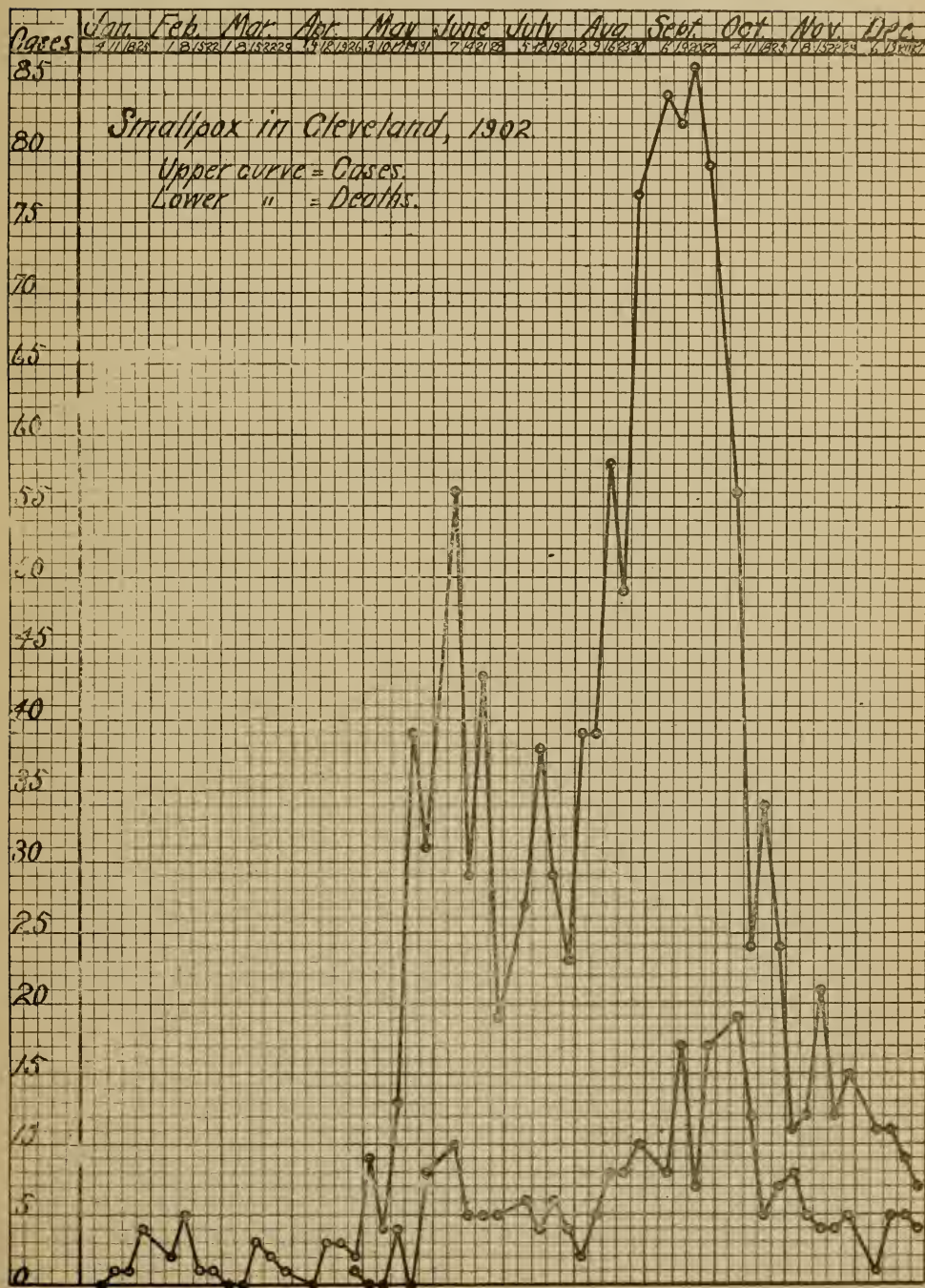
Readers of the Ohio Sanitary Bulletin may remember an article that appeared in its columns for August-September, 1902, under the title as above. The history was given of an epidemic of smallpox in Cleveland that began in 1900, and was brought to a close in July, 1901. The health officer of Cleveland had presented a paper on "How We Rid Cleveland of Smallpox," to the Cleveland Academy of Medicine, in which he condemned the vaccine virus that had been used (with bad results in some cases) in the city, and gave to disinfection, and the redisinfection of houses in smallpox districts, the chief credit in freeing the city from smallpox. He was widely misquoted by the anti-vaccinationists as being opposed to vaccination itself, and Cleveland was pointed to as a city where vaccination had been abandoned and an epidemic of smallpox stamped out by disinfection.

In the Bulletin article referred to above, it was shown that Cleveland was really rid of her smallpox before this redisinfection of houses was begun; that it was brought about by the former health officer, assisted by the State Board of Health, by quarantine, by disinfection and *vaccination*. It was further shown that Cleveland continued free from smallpox for several months, but that at

the time (August, 1902), another outbreak had occurred, and the disease had already gained epidemic proportions.

Cleveland is now again practically rid of her smallpox.

The following diagram and table show the cases of smallpox and deaths therefrom in Cleveland each week during 1902:



CASES AND DEATHS BY WEEKS WITH PER CENT. OF DEATHS TO CASES REPORTED. *

Month.	January.				February.				March.					April.			
Week ending..	4	11	18	25	1	8	15	22	1	8	15	22	29	5	12	19	26
Cases	0	1	1	4	2	5	1	1	0	0	3	2	1	0	3	3	2
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Per cent .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50.0

Month.	May.					June.				July.				August.				
Week ending.	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30
Cases	9	4	13	39	31	56	29	43	19	27	38	29	23	39	39	58	49	77
Deaths	0	0	4	0	8	10	5	5	5	6	4	6	4	2	5	8	8	10
Per cent .....	..	..	30.8	..	25.8	17.9	17.2	11.6	26.3	22.2	10.5	20.7	17.0	5.1	12.8	13.8	16.5	13.0

Month.	September.				October.				November.					December.			
Week ending..	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27
Cases ..	84	82	86	79	56	24	34	24	11	12	21	12	15	11	11	9	7
Deaths ..	8	17	7	17	19	12	5	7	8	5	4	4	5	1	5	5	4
Per cent	9.5	20.7	8.1	21.5	33.9	50.0	14.7	29.2	72.7	41.7	19.1	33.3	33.3	9.1	45.5	55.5	57.1

The total number of cases for the year was 1,248, with 224 deaths, a death rate of 17.9 per cent. This was the "genuine, old-fashioned" smallpox. Many of the cases were of the most malignant form. It was exceedingly contagious, unlike the mild form which had hitherto prevailed, and was correspondingly difficult to control. A slight exposure often meant death. Note the diagram and see how the epidemic gradually gained force, and rather rapidly mounted to its maximum for the week ending September 20th, with 86 cases for that week. But note the wonderful drop immediately thereafter. The curve is comparable to a mountain ascent, with a look down a sheer precipice on the other side.

How was this sudden ending of this epidemic of smallpox brought about? By *vaccination*, with, of course, isolation of the patients.

About the first of August, 1902, the health officer of Cleveland, Dr. Martin Friedrich, appointed 170 physicians as public vaccinators. These were appointed from among the best known men of the city, who set aside certain hours, announced in the papers, for free vaccination of all who presented themselves. The vaccine virus was furnished by the health department, and each lot

of virus was examined to insure its purity. Public vaccination began August 15, 1902. The number of vaccinations paid for by the city in 1902 was 195,000 in round numbers, and the great majority of this work was done after August 15th.

On September 3, 1902, the Chamber of Commerce, which co-operated with the health authorities in every possible way, issued a circular letter to employers urging them to make vaccination a condition of employment. This was done by a large number, and many thousands of men and women in workshops, factories and stores were vaccinated in September.

School began September 8, 1902. No child was permitted to remain in school unless successfully vaccinated. Seventy-seven medical men were appointed, who visited every school and inspected each pupil to determine whether it had been successfully vaccinated. A large number of school children were vaccinated by these physicians. There are about 56,000 pupils in the public and parochial schools, and all but a few who remained at home were successfully vaccinated.

On September 20, 1902, the Chamber of Commerce sent a circular letter to the pastor of each church in Cleveland, requesting him to urge general vaccination, and especially of children under school age. Such a recommendation was made from practically all the pulpits in the city.

By these various measures many thousands were vaccinated during August and September, 1902. The result has already been shown. Of course other preventive measures were not neglected. Patients were promptly removed to the hospital. Persons exposed were hunted up, vaccinated and quarantined. Houses were disinfected, etc., but to *vaccination* undoubtedly is due the credit of having so abruptly cut short this smallpox epidemic in Cleveland.

Praise is due to the health officer, Dr. Friedrich, for having so vigorously enforced vaccination when it was once begun; and his action in stopping the use of impure and inert vaccine virus undoubtedly was a factor in compelling vaccine propagators to furnish a better product.

In view of this later history of "How Cleveland Was Rid of Smallpox," we scarcely think that even the anti-vaccination journals will dare to quote Dr. Friedrich as opposed to vaccination, or to point to that city as an example of having stamped out an epidemic of smallpox without the aid of vaccination.

The lesson of Cleveland's smallpox should be, do not wait until the enemy is within the gates. Vaccinate in advance, and an epidemic of smallpox will be impossible. Smallpox is epidemic, and any city with a large proportion of its inhabitants unvaccinated invites an epidemic of this terrible disease.

Following is a table showing the counties and places invaded by smallpox, and the number of cases reported in each, during the year 1902:

CASES AND DEATHS OF SMALLPOX REPORTED TO THE STATE BOARD OF HEALTH FROM JANUARY 1, TO DECEMBER 31, 1902.

County.	Place.	Cases.	Deaths.
Adams	Franklin Township	1	....
	Jefferson Township	5	....
	Green Township	1	1
	Meigs Township	12	....
	Peebles	1	....
	Tiffin Township	1	....
	West Union	4	....
Allen	Delphos	2	....
	Lima	10	....
	Monroe Township	1	....

CASES OF DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Ashland	Troy Township	2	....
Ashtabula	Ashtabula	5	....
	Ashtabula Township	4	....
	Kingsville Township	2	....
	Trumbull Township	1	....
Athens	Athens	2	....
	Athens Township	11	....
	Berne Township	1	....
	Dover Township	5	....
	Troy Township	1	....
	Waterloo Township	31	....
	York Township	32	....
Auglaize	Cridersville	4	....
	Moulton Township	8	....
	St. Marys	5	....
	Wapakoneta	1	....
Belmont	Bellaire	11	1
	Bridgeport	1	....
	Kirkwood Township	1	....
	Pultney Township	5	1
	Smith Township	5	1
	Washington Towaship	7	1
Brown	Ripley	2	....
	Union Township	6	....
Butler	Fairfield Township	11	....
	Hamilton	57	....
	Hanover Township	5	....
	Liberty Township	7	....
	Madison Township	1	....
	Middletown	20	....
	Oxford	1	....
	Ross Township	2	....
	St. Clair Township	3	....
Carroll	Malvern	7	....
	Sherodsville	1	....
Champaign	Adams Township	3	....
	Goshen Township	1	....
	Johnson Township	5	....
	St. Paris	4	....
	Urbana	7	....
	Urbana Township	5	....
Clark	Bethel Township	6	....
	Catawba	1	....
	Harmony Township	3	....
	Mad River Township	2	....
	Pleasant Township	18	1
	Springfield	92	2
	Springfield Township	4	....
Clermont	Batavia Township	7	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Clermont—Con.	Bethel	4	....
	New Richmond	23	....
	Ohio Township	3	....
	Pierce Township	3	....
	Tate Township	16	....
	Washington Township	5	....
	Williamsburg Township	2	....
Clinton	Adams Township	1	....
	Clark Township	6	....
	Jefferson Township	1	....
	Midland	1	....
	Sabina	12	....
	Vernon Township	1	....
	Wilmington	2	....
Columbiana	Wilson Township	1	....
	Elk Run Township	1	....
	Lisbon	4	1
	Middleton Township	1	....
	Salem Township	1	....
Crawford	Wellsville	2	....
	Chatfield Township	7	....
	Galion	1	....
Cuyahoga	Texas Township	3	....
	Berea	1	....
	Brooklyn	15	4
	Brooklyn Township	3	1
	Cleveland	1,248	224
	Collinwood	2	1
	Dover Township	2	....
	East Cleveland	1	....
	Euclid Township	2	....
	Glenville	1	....
	Independence Township	15	2
	Lakewood	3	....
	Linndale	3	1
	Mayfield Township	2	....
	Middleburg Township	1	....
	Newburg	5	2
	Parma Township	7	3
	Royalton Township	2	....
Darke	Allen Township	1	....
	Burkettsville	7	....
Defiance	Union City	15	....
	Hicksville	55	....
	Hicksville Township	16	....
	Mark Township	1	....
	Milford Township	4	....
Delaware	Tiffin Township	1	....
	Concord Township	1	....
	Delaware	27	4

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Delaware—Con.	Oxford Township	4	....
	Radnor Township	4	....
	Troy Township	1	....
Erie	Berlin Township	10	2
	Groton Township	1	....
	Margaretta Township	5	....
	Milan Township	7	....
	Sandusky	12	1
Fairfield	Vermilion	2	....
	Lancaster	1	....
	Liberty Township	2	....
Fayette	Jasper Township	52	....
	Jefferson Township	7	....
	Milledgeville	30	....
	Perry Township	2	....
	Union Township	24	....
	Washington C. H.	13	....
	Wayne Township	1	....
Franklin	Clinton Township	1	....
	Columbus	161	2
	Madison Township	1	....
	Marion Township	2	....
	Mifflin Township	4	....
	Pleasant Township	1	....
	Prairie Township	2	....
	Sharon Township	1	....
Fulton	Clinton Township	1	....
Gallia	Addison Township	6	....
	Cheshire Township	2	....
	Gallipolis	18	....
	Gallipolis Township	2	....
	Guyan Township	1	....
Geauga	Auburn Township	1	....
	Burton Township	4	....
	Chardon	1	1
Greene	Bowersville	2	....
	Xenia	32	....
	Xenia Township	9	....
	Yellow Springs	2	1
Guernsey	Cambridge	4	1
Hamilton	Anderson Township	3	....
	Bond Hill	1	....
	Carthage	6	....
	Cincinnati	448	5
	College Hill	1	....
	Delhi	5	....
	Delhi Township	6	....
	Elmwood Place	7	....
	Fernbank	1	....
	Glendale	3	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Hamilton—Con	Green Township	2	....
	Harrison	22	....
	Harrison Township	2	....
	Hartwell	2	....
	Hyde Park	1	....
	Lockland	26	....
	Mill Creek Township	5	....
	Mt. Washington	2	....
	Norwood	10	....
	Reading	86	2
	St. Bernard	21	....
	Sycamore Township	7	....
Hancock	Winton Place	5	....
	Findlay	5	....
Hardin	Washington Township	1	....
	Kenton	2	....
	Mt. Victory	1	....
Harrison	Cadiz	5	....
	Scio	8	....
	Short Creek Township	7	....
	Stock Township	6	....
	Washington Township	1	....
Henry	Damascus Township	1	....
	McClure	4	....
Highland	Clay Township	1	....
	Dodson Township	6	....
	Greenfield	88	....
	Hillsboro	2	....
	Lynchburg	24	....
	Madison Township	1	....
	Union Township	1	....
Holmes	Millersburg	1	....
Huron	Bellevue	4	....
	Norwalk	49	6
	Norwalk Township	1	....
	Wakeman Township	6	....
Jackson	Jackson	8	....
	Jefferson Township	4	....
	Washington Township	1	....
Jefferson	Dillonvale	2	....
	Knox Township	6	....
	Mingo Junction	19	....
	Mt. Pleasant	1	1
	Mt. Pleasant Township	3	....
	Smithfield Township	2	....
Knox	Steubenville	57	....
	Centerburg	1	....
	Clinton Township	4	....
	Liberty Township	1	....
	Milford Township	1	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
	Morris Township	1	....
Knox—Concluded	Mt. Vernon	14	4
	Pike Township	1	....
	Union Township	1	....
Lake	Willoughby	2	....
	Willoughby Township	3	1
Lawrence	Aid Township	9	....
	Fayette Township	1	....
	Hamilton Township	6	....
	Hanging Rock	2	....
	Ironton	148	....
	Lawrence Township	54	....
	Perry Township	5	....
	Union Township	9	....
	Upper Township	10	....
	Windsor Township	10	....
Licking	Alexandria	11	....
	Bennington Township	1	....
	Burlington Township	19	....
	Etna Township	8	....
	Harrison Township	1	....
	Hebron	1	....
	Hopewell Township	1	....
	Jersey Township	1	....
	Newark	43	1
	Pataskala	1	....
	St. Albans Township	6	....
	Union Township	1	....
	Washington Township	8	....
Logan	Bellefontaine	1	....
	Miami Township	4	....
	Pleasant Township	4	....
	Stokes Township	1	....
	West Mansfield	10	3
Lorain	Avon	1	....
	Columbia Township	20	1
	Elyria	2	2
	Lorain	3	....
	Russia Township	10	1
	Sheffield Township	3	....
Lucas	Oregon Township	1	....
	Springfield Township	5	....
	Toledo	139	11
	Washington Township	7	....
Madison	Canaan Township	1	....
	London	2	....
	Monroe Township	1	....
	Union Township	5	....
Mahoning	Austintown Township	2	1
	Coitsville Township	5	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Mahoning—Con.	Sebring	3	....
	Youngstown	67	16
	Youngstown Township	18	1
Marion	Big Island Township	2	....
	Marion	22	3
	Pleasant Township	11	1
	Prospect	8	3
	Richland Township	14	....
Medina	Guilford Township	2	....
	Liverpool Township	9	....
	Medina Township	2	....
Meigs	Bedford Township	7	....
	Letart Township	1	....
	Middleport	7	....
	Olive Township	2	....
Mercer	Butler Township	72	....
	Coldwater	40	....
	Ft. Recovery	18	....
	Granville Township	19	....
	Hopewell Township	8	....
	Black Creek Township	3	....
	Montezuma	8	....
	Recovery Township	17	....
	Rockford	27	....
	St. Henry	1	....
Miami	Washington Township	8	....
	Laura	15	....
	West Milton	8	....
Mcroe	Adams Township	17	....
	Benton Township	14	2
	Bethel Township	1	....
	Center Township	1	....
	Clarington	14	....
	Salem Township	1	....
	Switzerland Township	1	....
	Summit Township	2	....
Montgomery.....	Washington Township	3	....
	Brookville	4	....
	Dayton	46	....
	German Township	1	....
	Harrison Township	6	....
	Jefferson Township	1	....
	Madison Township	5	....
	Miamisburg	26	....
	Perry Township	1	....
	West Carrollton	1	1
Muskingum	Brush Creek Township	1	....
	Frazeysburg	11	....
	Hopewell Township	1	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Muskingum—Con.	New Concord	1	....
	Perry Township	6	....
	Zanesville	5	....
Ottawa	Elmore	2	....
	Harris Township	2	....
Paulding	Blue Creek Township	5	....
	Broughton	7	....
	Crane Township	1	....
	Harrison Township	1	....
	Jackson Township	17	1
	Latty	5	....
	Paulding	17	....
	Paulding Township	4	....
	Washington Township	1	....
Perry	Crooksville	3	....
	Hopewell Township	2	1
	Madison Township	1	....
	Monroe Township	3	....
Pickaway	Ashville	4	....
Pike	Marion Township	1	....
	Camp Creek Township	7	....
	Scioto Township	1	....
	Sunfish Township	3	....
Portage	Charlestown Township	5	....
	Kent	4	1
	Randolph Township	3	....
	Ravenna	1	....
Preble	Gratis Township	20	....
	Somers Township	5	....
	Twin Township	1	....
Putnam	Glandorf	45	1
	Greensburg Township	6	....
	Jennings Township	3	....
	Leipsic	3	....
	Liberty Township	5	....
	Ottawa	5	....
	Ottawa Township	17	....
	Pleasant Township	13	....
	Union Township	5	....
Richland	West Leipsic	14	....
	Belleville	4	4
	Jackson Township	1	....
	Jefferson Township	2	....
	Mansfield	2	....
	Plymouth Township	2	....
Ross	Shelby	4	....
	Bourneville	69	....
	Buckskin Township	17	....
	Chillicothe	6	....
	Huntington Township	5	....

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Ross—Concluded	Paint Township	15	....
	Paxton Township	11	....
	Springfield Township	1	....
	Twin Township	69	....
Sandusky	Ballville Township	1	....
	Clyde	15	....
	Fremont	16	....
	Green Creek Township	3	....
	Riley Township	15	....
	Sandusky Township	11	....
	Scott Township	21	....
	Springfield Township	1	....
	Townsend Township	42	....
	Washington Township	1	....
	York Township	1	....
Scioto	Bloom Township	12	....
	Clay Township	30	5
	Green Township	5	....
	Harrison Township	1	....
	Jefferson Township	1	....
	Madison Township	9	....
	Niles Township	4	....
	Porter Township	2	....
	Portsmouth	134	9
	Washington Township	7	....
Seneca	Bettsville	3	1
	Big Springs Township	8	....
	Eden Township	7	....
	Fostoria	5	....
	Jackson Township	1	....
	Liberty Township	9	....
	Pleasant Township	1	....
	Thompson Township	8	1
	Tiffin	2	....
	Tiffin	2	....
Shelby	Jackson Center	8	....
	Sidney	2	....
Stark	Alliance	2	1
	Canton	14	1
	Canton Township	3	....
	Massillon	1	....
	Nimishillen Township	5	....
	Perry Township	1	....
Summit	Akron	3	1
	Barberton	1	1
	Boston Township	2	....
	Cuyahoga Falls	16	....
	Richfield Township	1	....
	Tallmadge Township	2	....
Trumbull	Liberty Township	1	....
	Mineral Ridge	14	3

CASES AND DEATHS OF SMALLPOX REPORTED, ETC.—Continued.

County.	Place.	Cases.	Deaths.
Trumbull—Con	Newton Falls	18	....
	Vernon Township	2	....
	Warren	15	1
	Weathersfield Township	2	....
Tuscarawas	Mineral City	1	....
	New Philadelphia	5	1
Union	Marysville	1	....
	Washington Township	1	....
	York Township	2	2
Van Wert	Harrison Township	12	....
	Hoaglin Township	14	....
	Liberty Township	1	....
	Pleasant Township	3	....
	Van Wert Township	2	....
Vinton	Elk Township	1	1
	Knox Township	1	....
Warren	Lebanon	8	....
	Turtle Creek Township	1	....
Wayne	Green Township	5	....
	Wooster	4	....
Williams	Alvordton	1	....
	Brady Township	1	....
	Bryan	22	....
	Center Township	41	....
	Edgerton	6	....
	Millcreek Township	2	....
	Montpelier	2	....
Wood	Bloom Township	1	....
	Lake Township	1	....
	Liberty Township	5	....
	Montgomery Township	7	....
	North Baltimore	8	....
	Portage Township	1	....
	Prairie Depot	4	....
Counties.....81	Places ..442	5756	361

STREAM MEASUREMENTS.

The Board has continued to give thoughtful attention to streams and public water supplies. For some years records have been kept of daily measurements of the Scioto, Maumee and Sandusky rivers. During the past year arrangements were entered into with the Hydrographic Division

of the U. S. Geological Survey for the establishment of a number of additional gauging stations in the state. The Board would here make grateful acknowledgment to Hon. Wm. R. Warnock, Hon. Thos. B. Kyle, Hon. Robert M. Nevin, Hon. Charles Dick, Hon. Wm. W. Skiles, Hon. Jacob A. Beidler, Hon. Jos. J. Gill, Hon. Henry Clay VanVoorhis, Hon. Chas. Q. Hildebrandt and Hon. Robert B. Gordon, members of Congress, whose good offices helped to bring this about.

These stations will be mostly located on small streams. These measurements of stream flows, with tables of run-off that can be made from them and rainfall measurements, will eventually be of much value. Many of our growing cities must finally go to the streams for a water supply. At present, questions of storage must be largely worked out by such records obtained from other—mostly the Eastern states. Enough work has already been done in Ohio to show that foreign records are not applicable to local conditions. We must have our own records.

SEWERAGE, POLLUTION OF STREAMS.

While providing thus for the gathering of information regarding the *quantity* of available water supply, the question of its purity, or rather its pollution, has not been neglected. Plans for sewerage for nineteen cities and villages were examined and passed upon by the Board. These were as follows: Ada, Cincinnati, Dayton, Deshler, Galion, Geneva, Loudonville, Maumee, New Matamoras, Norwalk, Payne, Plain City, Portsmouth, Sidney, Toledo, Wapakoneta, Washington C. H., Westerville and Wyoming. The plans for Ada and Payne were disapproved. In addition, plans for sewage purification works for Galion, Glenwood Children's Home, Lucas County Infirmary, Plain City, Washington C. H., Washington County Infirmary, Westerville and Wyoming were approved.

The building of sewers is rapidly increasing, more rapidly, probably, than the increase in population, for modern civilization demands a bath tub and water closet. This means increased pollution of the streams unless sewage purification is required. This considerably increases the cost of sewerage; and, as the town that produces the sewage is seldom injured by it, the nuisance it causes being below the town, in most cases, it is hardly to be expected that the sewage will be purified unless some one has power to compel its being done. The law of 1893, giving this power to the State Board of Health, and also the power to prevent the introduction of a polluted water supply, has been fairly effective. It could be made much more so, and the Board prepared an amendment to this law and presented it to the last general assembly. It passed the house without opposition, but much to the surprise and regret of the friends of better public sanitation it was defeated in the senate. It is wise legislation that looks to the wel-

fare of future generations, and especially so when the same measure gives protection to those of the present day. It needs no extended argument to show that pure public water supplies enter very largely into the health and happiness of the people of the state; nor to prove that the state must have a controlling hand in this matter, as a selfish municipality will never willingly tax itself for the benefit of another community. It is hoped that better ideas will prevail and that the next general assembly will increase the powers of the State Board of Health for the control of water supplies and sewerage.

MILL CREEK.

In this connection attention is directed to a special report given hereafter, showing the intolerable condition of Mill Creek at Cincinnati and vicinity. For years this creek has been the source of bitter complaint from thousands of people who have been obliged to live amid the noxious odors it generates. For much of each year it is nothing but an immense, open, stinking sewer. This would seem to be a case for legislative action by the state; not merely of a permissive character, but mandatory. Several municipalities, as well as a state, and county institutions, contribute to this nuisance. It is entirely possible to keep sewage and other polluting material out of Mill Creek, and render it a comparatively clean stream. We most respectfully recommend this matter to the attention of the legislature.

WATER SUPPLIES.

The following places presented plans for a new or additional water supply: Ada, Bellefontaine, Bradner, Canal Fulton, Canton, Columbus, Columbus Grove, Freeport, Gambier (Kenyon College), Lancaster, Loudonville, Mt. Gilead, New Bremen, Newcomerstown, New Matamoras, New Richmond, New Vienna, Oakwood, Paulding, Sebring, Shreve, Westerville, West Milton and Wilmington. These were all approved, except those for Bradner and New Matamoras. In the latter case no action was taken.

Plans for filters for the water supply of Geneva were approved.

GARBAGE DISPOSAL.

The Board was called upon to approve plans for a garbage disposal plant for the city of Canton, as required by a recent law. The case presented two points of interest. The city council having contracted with a certain company for a garbage plant, injunction proceedings were begun

to have the contract set aside. The contract was set aside mainly upon the grounds that the plans for the garbage furnace had not been approved by the State Board of Health. The council then sent plans for two different garbage furnaces to the State Board of Health, and asked that they be approved or disapproved. The Board refused to act upon two sets of plans, and required the council to select a definite plant, and submit it for approval. This was done, and the furnace selected was approved.

SCHOOL HYGIENE.

In the last annual report the sanitary condition of a considerable number of school houses in different places was reported upon. Many of them were shown to be wretchedly unfit in their sanitary arrangement. This year a conference was called to which all superintendents of schools were invited, and two days were devoted to the discussion of questions relating to school hygiene.

HEALTH LEGISLATION.

The Board, after nearly two years of careful study, presented a bill to the last general assembly, embodying some very important changes in the health laws. The bill, with slight change, was enacted into a law. It materially strengthens the hands of the local boards of health. These boards were changed from six to five members, and the term of office extended for five years. This will remove them, to a considerable extent, from political interference. Hitherto, the regulations for the prevention of contagious diseases were such as each local board of health cared to make them. Under the present order of things such regulations are uniform throughout the state. Provision was made for a health officer in every township. In many other respects the health laws were improved and a wider scope given to work of boards of health.

LOCAL BOARDS OF HEALTH.

The State Board has kept in the closest possible touch with the local health authorities and has aided them in every way possible. The annual reports of the local boards are given on a later page. The increasing efficiency of these boards may be noted in looking over their reports for the last ten or twelve years. There is still room for great improvement, especially in the rural districts. It is hoped that the requirement of a health officer for every township will give to these greater protection against the preventable diseases. One provision of the new health laws authorizes the State Board of Health to appoint a health officer for any

city, village or township that fails or refuses to do so. The Board has used this power only in cases where there was some special reason for doing so, such as the outbreak of some dangerous contagious disease which was not being properly looked after by the local authorities.

Reports of the various investigations of the Board, mortality statistics, the work in the laboratory, etc., will be found under appropriate headings.

SECRETARY'S REPORTS AND MINUTES OF BOARD MEETINGS.

JANUARY MEETING.

A regular meeting of the State Board of Health was held at the office of the secretary, Columbus, January 15th, 1902.

There were present Drs. Stanton, Crossland, Warner, Chapman, and Mr. Hartzell.

Dr. Stanton presided.

It was voted to postpone the reading of the minutes of the last meeting.

Mr. Frank M. Kennedy, city engineer of Washington C. H., and Mr. H. J. Shaw, consulting engineer, presented plans for changes in the sewerage system of that city. These were referred to executive session.

Mr. H. E. Riggs, consulting engineer, of Toledo, presented plans for sewerage and sewage disposal for the Lucas County Infirmary; and also plans for a sewerage system for the village of Geneva.

These were referred to executive session.

Mr. J. P. Force, consulting engineer, presented plans for a sewerage system and sewage disposal works for the village of Westerville. These were referred to executive session.

Professor C. C. Howard, of Columbus, addressed the Board upon the subject of using arsenical fluids in embalming. He showed how this often defeated justice by enabling one to conceal the use of arsenic for criminal purposes; and suggested that some action should be taken to prevent the use of arsenic in embalming.

The minutes of the October and November meetings were then read and approved.

The secretary presented his quarterly report, which was approved and ordered filed for printing.

The secretary reported that the following plans had been approved by the Board by mail vote:

Plans for the purification of the sewage of the Glenwood Children's Home, in Mahoning county, approved subject to the conditions that the

approval will be withdrawn if the Board should consider it necessary in the future for the protection of the water supply of Youngstown, or that such changes and improvements in the methods of purification shall be made as the Board may require to that end.

Plans for a water supply for Oakwood, a suburb of Dayton, to be obtained from a well located twenty feet south of the Dayton corporation line 198 feet west of Brown street.

Plans for a system of sewerage for the drainage of a portion of the territory, in Toledo, bounded by Swan Creek, the Miami and Erie Canal and the L. S. & M. S. Railway, the main sewer to discharge into Swan Creek at City Park Avenue bridge.

He requested that these matters be taken up and disposed of by a *viva voce* vote, confirming the action already taken in each case.

It was moved by Dr. Warner and seconded by Dr. Chapman that the plans for the purification of the sewage from the Glenwood Children's Home be approved, subject to the conditions that the approval will be withdrawn if the Board should consider it necessary in the future for the protection of the water supply of Youngstown, or that such changes and improvements in the methods of purification shall be made as the Board may require to that end.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, that the plans for a water supply for Oakwood, to be obtained from a well located 20 feet south of the Dayton corporation line and 198 feet west of Brown street, be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Warner, that the plans for a system of sewerage for the drainage of a portion of the territory, in Toledo, bounded by Swan Creek, the Miami and Erie Canal and the L. S. & M. S. Railway, the main sewer to discharge into Swan Creek at City Park Avenue bridge, be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

The secretary presented the final draft of a bill to amend the health laws.

The bill was approved and the secretary was instructed to have it introduced in the house.

The secretary presented letters from Dr. Edmund Souchon, President of the State Board of Health of Louisiana, in reference to the Spooner bill for the creation of a National Department of Health.

On motion of Mr. Hartzell, the secretary was instructed to advise Ohio representatives in congress that the State Board of Health fully endorsed the Spooner bill.

The secretary reported that Dr. Howe (D. V. S.) Meat Inspector of Dayton, had consulted him about a bill authorizing meat inspectors to tag meat or milk animals found with a contagious disease. Dr. Howe wished to have the opinion of the Board in regard to the measure.

On motion of Dr. Chapman, the tagging of diseased animals was approved.

The secretary presented a bill with reference to the creation of a national commission on leprosy. No action was taken.

The plans for changes in sewerage for Washington, C. H., were taken up for consideration.

On motion of Dr. Warner it was voted to refer them to the engineer for further investigation and report.

The plans for sewerage for the Lucas County Infirmary were taken up for consideration.

On motion of Mr. Hartzell, and seconded by Dr. Crossland, it was voted to approve the plans presented for the purification of the sewage of the Lucas County Infirmary by the use of septic tanks and filter beds.

Those voting in the affirmative were Messrs Stanton, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

The plans for sewage purification works for the village of Geneva were taken up for consideration.

As these plans were only presented in outline, with the expectation that completed plans would be presented later, it was voted, on motion of Dr. Chapman, to approve the principles of sewerage and sewage disposal for the village of Geneva, as prepared by Mr. Riggs, the consulting engineer, with the understanding that no construction of sewers is to take place until full and detailed plans have been presented to and approved by the Board.

The plans for sewerage and sewage purification for the village of Westerville, presented by Mr. J. P. Force, were taken up for consideration.

On motion of Dr. Crossland, and seconded by Mr. Hartzell, it was voted to approve the plans for the construction of a separate system of sewerage and sewage purification works for the village of Westerville.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

The plans for an additional water supply for the city of Bellefontaine were taken up for consideration.

On motion of Dr. Crossland, and seconded by Dr. Warner, it was voted to approve an addition to the water supply of the city of Bellefontaine, to be obtained from a driven well about 70 feet deep, located about 100 feet north of the pumping station.

Those voting in the affirmative were Messrs. Stanton, Warner, Crossland, Chapman and Hartzell.

In the negative, none.

The secretary reported that complaint having been made against the quality of the water supply of Scio, the engineer had been sent to make an investigation. The report of the engineer was presented.

The secretary was instructed to send a copy of this report to the mayor and president of the board of health of Scio.

The chair appointed the following legislative committee, viz.: Drs. Warner, Chapman and Probst.

The secretary presented a communication from the mayor and health officer of Cleveland requesting permission to disinter the remains of Otto Neubauer, buried at Hudson, and take them to Cleveland; the cause of death having been smallpox.

On motion of Mr. Hartzell, the secretary was instructed to inform the health officer that the Board had voted not to object to such removal provided the consent of the Hudson health authorities should be first obtained, and that official permission were given by the health department of Cleveland to bring the body to that city.

Dr. Chapman reported that some complaint had been made with reference to a nuisance caused by the Madison street sewer of Toledo.

On motion of Mr. Hartzell, Dr. Chapman was appointed a committee to make further investigation and report.

On motion of Mr. Hartzell it was voted to take a recess subject to the call of the president.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

To the President and Members of the Ohio State Board of Health.

GENTLEMEN:—Your secretary begs to leave to present the following report for the period intervening since the last regular meeting of the Board, October 16, 1901.

The smallpox situation has continued to demand considerable attention. The last published report in the *Bulletin* gave 451 cases and 6 deaths from August 1st to December 20, 1901, located in 65 different places. From December 20, 1901, to January 14, 1902, 163 cases and 1 death have been reported in 35 different places. For five months ending with May 31, 1901, there were reported 2,911 cases and 32 deaths. For the seven months ending December 31, 1901, there were 1,122 cases and 17 deaths, or a total of 4,033 cases and 49 deaths during the year 1901. During the year 1900, 3,229 cases and 44 deaths were reported. From the first outbreak of the present epidemic, on April 6, 1898, to January 14, 1902, a period of three years, eight months and seven days, there have been reported in Ohio 9,803 cases of smallpox with 130 deaths, a mortality of but 1.33 per cent.

Reports of the dismissal of quarantine are not always received. As nearly as I can determine, smallpox is now present in the following counties and places:

County.	Place.
Ashtabula	Ashtabula
Auglaize	St. Marys
Belmont	Barnesville
	Bridgeport
	St. Clairsville
Cuyahoga	Cleveland
Darke	Jackson Township
	Union City
Defiance.....	Hicksville
Franklin	Columbus
	Sharon Township
Gallia	Addison Township
	Cheshire Township
Hamilton	Cincinnati
	Mill Creek Township
Hancock	Allen Township
	Findlay

County.	Place.
Highland	Lynchburg
Huron	Chicago Junction
Jackson	Oak Hill
	Washington Township
Jefferson	Mingo Junction
Knox	Wayne Township
Lawrence	Aid Township
Licking	Eden Township
	Hanover Township
	Newark
	Newton Township
Logan	West Mansfield
Lorain	Russia Township
Lucas	Toledo
Mahoning	Youngstown
Mercer	Butler Township
	Coldwater
	Granville Township
	Recovery Township
	Washington Township
Montgomery	Dayton
	Germantown
Madison	Monroe Township
Morrow	Cardington
Muskingum	Brush Creek Township
Perry	New Lexington
Sandusky	Clyde
	Gibsonburg
	Townsend Township
Seneca	Big Spring Township
	Fostoria
Shelby	Orange Township
	Sidney
Stark	Massillon
Tuscarawas	New Philadelphia
	Uhrichsville
Union	Magnetic Springs
Van Wert	Liberty Township
	Harrison Township
	Van Wert
Wayne	Creston
Williams	Alvordton
Wyandot	Carey

Counties38

Places61

On account of smallpox I have visited Findlay, and township adjoining; Cleveland, Coldwater, Newark and Mingo Junction.

At Newark the board of health had a physician arrested for failing to report smallpox in his own family, his wife being the one affected. I was called to examine the patient and testify as to the character of the disease. I pronounced it smallpox. The case against the physician has not yet been heard.

The smallpox situation at Mingo is somewhat serious. The disease broke out in a hotel where a large number of workingmen are boarding. On December 2, 1901, I advised the board of health by telephone as to preventive measures. Later, at their expense, Dr. Heinlein was sent there to confirm the diagnosis. Still later he was sent there to advise the authorities of precautions to be taken to meet the emergency of three more cases in the hotel after quarantine had been lifted.

Mingo has a population of many nationalities. There is a large steel plant there employing about two thousand men. There was much alarm over the smallpox outbreak and it became necessary for me to personally visit the place, which I did January 9th. I found five cases of smallpox, three of them in an improvised hospital to which they had been taken from the hotel. The hotel was closed and eighteen persons were held there in quarantine.

I met twice with the board of health and the measures necessary to be taken were fully discussed. The board of health is ready to do everything in its power to stamp out the disease. Three new cases in one house were reported to me by telephone January 12th.

The point of greatest danger at present is Cincinnati.

There were 12 cases reported there in November, 30 in December and 24 in January to the 14th. I fear there is a large unvaccinated population in Cincinnati which, with the mildness of the disease, greatly favors its spread.

On the whole the smallpox situation is more favorable than it has been since the epidemic gained full headway. Since the last meeting medical inspectors have visited twelve places on account of smallpox.

Dr. Stanton investigated suspected smallpox at Madeira, Hamilton county, the case proving to be measles.

Dr. Chapman examined a case of chicken-pox at Bowling Green which had been mistaken for, or at least which was feared to be, smallpox.

He also visited Genoa, where he found two cases of eczema which were suspected to be smallpox.

In addition to these visits the following have been made :

Dr. Chapman investigated a stream nuisance at Fort Jennings, referred to later ; he also visited Maumee to investigate the complaint that the village was putting in sewerage without the Board's approval. This has been reported upon.

Dr. Stanton visited South Lebanon on account of scarlet fever.

Columbus Grove, Cuyahoga Falls, Oakwood (a suburb of Dayton) and Scio, were visited by the the engineer ; Bradner by the secretary, and Sebring by Mr. Hartzell, with reference to proposed water supplies. Reports of these investigations have been made to the Board except for Scio and Sebring. The engineer investigated a nuisance at Clyde ; also a nuisance at Mt. Sterling arising from private sewers discharging into a ditch that is usually dry. The village has water works, and the nuisance can be abated only by the construction of sewers, or by cess-pools for the private sewers. The authorities were advised accordingly.

Dr. Warner, Dr. Chapman, and the secretary, accompanied by Dr. Crossland, inspected the water supply of Zanesville, and the location of the proposed filters.

Further reference may be made here to some of these investigations ; others among them will be brought up later.

There is a strawboard works at or near Delphos, which it was, alleged by the health officer, is polluting Jennings Creek. This stream also receives some sewage from Delphos. Dr. Chapman in his report says, "The water in the creek and river is of a brown or nearly black color, and if the bottom is stirred is contaminated with foul-smelling, slimy, black mud which is very offensive to the sight and smell. This condition of water is not present in the river above the entrance of the creek." Chemical examinations of the stream above and below this source of pollution, of the strawboard waste and the sewage of Delphos showed that both the sewage and strawboard waste are contributing to the nuisance.

The evidence was placed in the hands of the health officer of Ft. Jennings, who was advised to urge the prosecuting attorney to bring the matter before the grand jury. I have not been apprised of any action having been taken by the local authorities.

A numerous signed petition was received from Clyde asking the Board to investigate a polluted stream at that place. Mr. Flynn made the investigation. A public nuisance was found, in part due to refuse from a large kraut works and in part to the effluent from the sewage disposal works of Clyde. The engineer's findings were supported by the results of chemical examinations of the stream and of the sewage effluent. Clyde put in beds for the intermittent filtration of sewage some years ago. The beds were grossly neglected, hence their inefficiency.

A full report of the findings was made to the petitioners and to the authorities of Clyde. The latter were advised to put their filtration plant in order and give it proper attention. Some improvements have been made; and the proposition is being discussed of extending the sewer system so as to include the objectionable waste from the kraut works, and to enlarge and improve the filter beds so they may properly purify all the sewage of the village.

Suit has been brought against the village of Shelby for the pollution of a stream by sewage. The suit was begun before the sewage disposal works were placed in operation. We were requested by the authorities of Shelby to make an investigation. As we are now engaged in an examination of all the sewage disposal works in the state for the purpose of a special report thereon, the request was granted. Samples of sewage and effluent were collected hourly during the twenty-four hours, and samples of this composite sewage and effluent were examined. Samples of the stream above and below the disposal works were also examined.

The sewage of Shelby flows a considerable distance before reaching the disposal works. It is received in small tanks in which considerable purification is taking place by septic action. From these it flows to a reservoir from which it is distributed to the filter beds.

The examination disclosed that more than 80 per cent of purification is being effected. This is mostly due to septic action, as the filter beds were giving but little nitrification. The effluent compared favorably, as regards purity, with the stream above the works. The stream below the works did not show material pollution.

A report of these findings was made to the authorities of Shelby. The engineer, Mr. Weddell, who constructed the works, was informed of the results of the investigation. He wrote that the beds had been flooded

by the stream not long before the examination, and this may account for their inefficient action.

Respectfully submitted,
C. O. PROBST,
Secretary.

APRIL MEETING.

A meeting of the State Board of Health was held in Columbus, at the office of the secretary, at 10:30 a. m., April 23, 1902.

There were present Drs. Stanton, Crossland, Warner, Chapman, and Mr. Hartzell.

Mr. H. E. Riggs, consulting engineer, of Toledo, requested the approval of a change in the plans for sewerage for Sidney, said plans having been approved by the Board, viz.; to change the location of the outlet-sewer from "A" to "B" as shown on a map presented to the Board, and remove the dam in the river.

It was moved by Dr. Warner and seconded by Dr. Crossland, that permission be granted to locate the outlet sewer for Sidney at the site of the proposed sewage disposal works, below the dam, said disposal works to be constructed whenever this should be deemed necessary by the State Board of Health.

Those voting in the affirmative were Messrs. Hartwell, Crossland, Warner, Chapman and Stanton.

In the negative, none.

On motion of Dr. Warner it was voted to take a recess until 8 p. m. of the following day, and to meet at that hour at the Grand Hotel, in Cincinnati.

SECOND SESSION.

April 24th, 8 P. M.

The Board reassembled, pursuant to adjournment, at 8 p. m. April 24, 1902, at the Grand Hotel, Cincinnati.

There were present Drs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

Dr. Stanton presided.

The minutes of the last meeting were read and approved.

Mr. E. G. Bradbury, of Columbus, presented plans for sewage disposal works for the Ohio Soldiers' and Sailors' Home at Sandusky, the plans having been prepared by Snow and Barbour, engineers, of Boston.

Mr. Roy Layton, city solicitor of Wapakoneta, presented plans for sewerage for the city of Wapakoneta.

It was voted to consider these questions in executive session.

The secretary presented his quarterly report, which, on motion of Dr. Warner, was approved and ordered filed for publication.

It was moved by Dr. Warner, and seconded by Dr. Crossland, that the plans for a system of sewers with sewage purification works for the village of Geneva, previously acted upon by mail vote, be approved.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Crossland, and seconded by Dr. Chapman, it was voted to approve the issuance of bonds by the city of Hamilton in the sum of three thousand five hundred dollars, or as much thereof as might be necessary, for the prevention of smallpox, previously acted upon by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Gemmill, and seconded by Dr. Warner, it was voted to approve plans for changes in the sewerage system for Washington C. H., including plans for purification works, subject to the following conditions:

1st. That the sewers and purification works be constructed in accordance with the amended plans without modification, unless such modification shall be approved by the State Board of Health.

2nd. That a sufficient bond issue be authorized to construct the proposed sewers and purification works.

3rd. That the sewage purification works shall be constructed as soon as the proposed changes in sewers shall have been made. These plans having been approved previously by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Chapman, and seconded by Dr. Gemmill, it was voted to approve plans for sewerage for a part of Division 14, of the city of Cincinnati, including sewer in Linwood avenue and Crawfish Creek and territory bounded by Linwood avenue, Observatory avenue and Delta avenue, previously approved by mail vote, upon the condition that no connection for house drainage, water closets or vaults shall be permitted without the consent of the State Board of Health, and that said approval shall take effect upon the receipt by said State Board of Health of a written agreement of the Board of Public Service that no permits shall be granted for house connections contrary to said condition. (Such agreement was subsequently filed.—*Secretary.*)

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Warner, and seconded by Dr. Gemmill, it was voted to approve a water supply for the village of Newcomerstown, to be obtained from twelve or more 6-inch wells located in the upper portion of the corporation and on the north bank of the Tuscarawas River, previously approved by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Crossland, and seconded by Dr. Chapman, it was voted to approve the plans for a system of sewers and sewage disposal works for the city of Galion, prepared by Mr. J. P. Force, Engineer, of Columbus; previously approved by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Gemmill, and seconded by Dr. Warner, it was voted to approve plans for sewer districts Nos. 6 and 7, of the city of Dayton, presented by the city civil engineer, which provide for two outlet sewers, one discharging at the foot of St. Francis avenue and the other at the foot of South Broadway, both into the Great Miami River; it being understood that, in accordance with a resolution adopted by the Board of City Affairs, April 2, 1902, "the proposed sanitary sewers are not to be used for cellar drainage." These plans were previously approved by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Chapman, and seconded by Dr. Crossland, it was voted to disapprove the proposed water supply for the village of Sebring, to be obtained from the Mahoning River, unless the water is purified by filtration in a manner satisfactory to the State Board of Health; previously acted upon by mail vote.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

The plans for sewage disposal works for the Ohio Soldiers' and Sailors' Home at Sandusky were taken up for consideration.

It was moved by Dr. Gemmill, and seconded by Dr. Miller, that the plans, as presented, be approved.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Warner, that the plans for sewers for Wapakoneta, as presented, be disapproved.

Those voting in the affirmative were Messrs. Stanton, Warner, Chapman, Miller, Crossland and Gemmill.

In the negative, none.

On motion of Dr. Chapman it was voted to reconsider the vote of the previous day, approving the change in location of the outlet sewer for Sidney, viz.: to change the outlet from "A" to "B" as shown upon the map presented by Mr. Riggs, consulting engineer.

Dr. Chapman then moved that Dr. Warner be appointed a committee to visit Sidney and report upon the proposed change in outlet.

This motion was withdrawn.

The original motion of Dr. Warner was then put and carried unanimously, viz.: "That permission be granted to locate the outlet sewer for Sidney at the site of the proposed sewage disposal works below the dam, said disposal works to be constructed whenever this should be deemed necessary by the State Board of Health."

The secretary presented a report by the engineer on a proposed water supply for the village of Westerville.

On motion of Dr. Warner, the question was referred to the secretary for further investigation and report.

The secretary presented a report prepared by the bacteriologist, Mr. Horton, on an epidemic of typhoid fever at Niles.

On motion of Dr. Chapman the report was received and ordered filed.

Correspondence was presented relative to approving the appointment of a sanitary policeman for Lakeside, made by the board of health of Danbury township, Ottawa county.

On motion of Dr. Crossland, the secretary was instructed to inform the township board of health that if they were unwilling to appoint the man recommended by the Lakeside Company, they must expect to pay the expenses of the man they appointed.

On motion of Dr. Warner, the secretary was appointed a delegate to the American Congress on Tuberculosis, to be held in New York in May 1902.

Plans for a garbage furnace to be constructed by the American Incinerating Company, of Toledo, for Canton, were presented, with a communication from the city clerk stating that these plans had been adopted by council, and requesting that they be approved.

On motion of Dr. Gemmill, the matter was referred to Drs. Chapman and Warner for investigation and report.

A communication was read from Dr. C. G. Gray, of Ironton, requesting the State Board of Health to adopt a regulation prohibiting spitting in the cars of the Camden Interstate Railway.

It was the opinion that any such rule would have to be of general application, and the question was referred to Drs. Warner and Probst for investigation and report.

The secretary read a report by the engineer, of an investigation of two school buildings at Delphos.

On motion the report was received, and the secretary instructed to send a copy to the board of health of Delphos.

It was voted to take a recess subject to the call of the chair, and to attend the meeting of the Ohio Society for the Prevention of Tuberculosis, to be held the following day.

C. O. PROBST,
Secretary.

Attest:

QUARTERLY REPORT OF THE SECRETARY.

To the President and Members of the Ohio State Board of Health.

GENTLEMEN:—Your secretary would respectfully report as follows:

The various instructions given the secretary at the last meeting, as noted in the minutes just read, were promptly carried out.

The smallpox situation has not been greatly changed. During February and March there were 592 cases and 5 deaths reported. One hundred and fifty of the cases were in Cincinnati. From April 1st to April 22nd, there were 196 cases reported, of which 48 were in Cincinnati. The disease is still widely prevalent in the United States. In Tennessee during the year ending February 19, 1902, there were 13,106 cases and 276 deaths.

Since the last meeting, January 15, 1902, medical inspectors of the Board have visited the following places:

Dr. Lyle: West Union, Mt. Washington, Gratis, Greenfield, Higginsport and Lynchburg.

Dr. Moninger: Pleasant township, Logan county; Ashville, Mill-edgeville, Paxton township, Ross county; Etna township, Licking county; Clinton township, Knox county; Madison township, Franklin county; Sabina, Springfield, Scio, and Union township, Fayette county.

Dr. Hole, of Cleveland, visited Oberlin, Columbia township, Lorain county; Liverpool, Medina county; and Randolph township, Portage county.

Dr. Cromley visited Willow Wood, Lawrence county.

Dr. Stanton visited Madisonville, West Union and St. Bernard.

Dr. Chapman visited New Riegel and the secretary visited Akron; all on account of smallpox.

Dr. Hoover, medical inspector at Cleveland, having resigned, Dr. Wm. T. Corlett was appointed in his place, with Dr. Charles M. Hole, of Cleveland as substitute when Dr. Corlett cannot go.

In addition to these visits for smallpox the following visits of inspection were made:

The engineer visited Washington C. H., Greenfield, Wapakoneta and the Ashtabula county infirmary in reference to sewerage; and Westerville and Newcomerstown on account of water supply. He also investigated a typhoid fever epidemic at Conneaut, and the sanitary condition of a school house at Delphos.

The secretary investigated unsanitary conditions arising from the improper discharge of sewage at the Soldiers' and Sailors' Home at Sandusky; and at the State Hospital at Athens. He also visited Dayton and inspected the plans for additional sewerage for that city.

The chemist investigated an epidemic of typhoid fever at Niles.

February 7th, Dr. Stanton, the secretary and engineer, met the engineer and consulting engineer for Washington C. H., in regard to changes in plans for sewerage proposed for that city.

February 28th, Dr. Chapman, the secretary and chemist attended a meeting of the Toledo Medical Society in Toledo, and took part in a discussion of the betterment of the water supply of that city.

March 27th the legislative committee, Drs. Warner, Chapman and Probst, appeared before the two senate committees to which was referred the health bill.

The secretary has been called upon to revise the following measures which have been or are now before legislature:

A bill to examine embalmers who prepare bodies dead of a contagious disease.

A bill to increase the powers of the meat and milk inspector and enable him to quarantine and tag animals with contagious disease.

A bill to prevent the pollution of streams by the refuse from straw-board works.

A bill to reorganize the live stock commission, placing it in the State Board of Agriculture.

The chapter relating to boards of health of the municipal code bill.

The secretary has taken part in the hearings before the committees to which these bills were referred.

The ice bill, the tuberculosis commission bill, and especially the health bill, with these other bills, have absorbed much of his time.

The proceedings of the joint meeting of the state and local boards of health have been printed and distributed.

Respectfully submitted,

C. O. PROBST,

Secretary.

JUNE MEETING.

A regular meeting of the State Board of Health was held at the Boody House, in Toledo, June 27 and 28, 1902.

All the members were present.

Dr. Stanton presided.

Dr. F. E. Kitzmiller, health officer of Piqua, representing the council of that city, asked the Board to approve plans for a change in sewerage for Piqua, namely: to convert a storm water sewer in Guernsey street, into a sanitary sewer.

The director of public improvements, Mr. Immel; the city engineer, Mr. Griggs; the superintendent of the water works, Mr. O'Shaughnessy; the assistant director of law, Mr. Rubrecht, and three members of the council, all of the city of Columbus, requested the Board's approval of certain changes in plans previously approved by the Board for extending the water supply of that city.

Mr. G. L. McKibben, C. E., of Van Wert, requested the Board to approve a change in location of wells for a water supply for the village of Columbus Grove.

It was moved by Dr. Chapman and seconded by Mr. Hartzell, that the plans for a water supply for Columbus Grove, to be obtained from wells located on inlet No. 276 of said village, be approved upon the condition that the chemical and bacteriological examination of samples of water from the proposed wells should prove satisfactory.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

Mr. H. E. Riggs, consulting engineer, of Toledo, presented plans for a system of sewerage for Deshler and for Wapakoneta, and asked that they be approved.

On motion of Dr. Warner these various questions were referred to executive session.

The minutes of the last meeting were then read and approved.

The secretary presented his quarterly report which was approved.

Dr. Martin Friedrich, health officer of Cleveland, who was present, was invited to address the Board upon the smallpox situation in Cleveland.

Dr. Crossland presented plans for sewers for the city of Zanesville, and recommended that they be approved.

It was moved by Dr. Chapman, and seconded by Dr. Warner, that the plans for sewers for the city of Zanesville, as presented by Dr. Crossland, be approved: viz., the Harrison street and Pierce street sewers in said city with outlet to the Muskingum River below the dam near the southern corporation line, and below low water mark in the river.

Those voting in the affirmative were Messrs Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

On motion of Dr. Warner, the president, secretary, and Dr. Miller were constituted a committee to visit Cleveland and take such action as they might deem necessary in reference to smallpox.

The secretary presented a report upon the appointment and approval of health officers under the amended health laws.

On motion of Dr. Warner the matter was referred to Drs. Chapman and Probst.

The president announced that the election of officers for the ensuing year would be in order.

Dr. Warner nominated Dr. Crossland for president and Dr. Miller for vice-president.

On motion of Dr. Chapman the secretary was instructed to cast the ballot of the Board for the persons nominated.

The secretary reported as having cast a ballot as directed, and the president announced that Dr. Crossland had been elected president and Dr. Miller vice-president, to assume office at the October meeting of the Board.

It was moved by Dr. Warner, and seconded by Dr. Crossland, that the plans for extending the water supply of the city of Columbus, as presented to the Board June 27, 1902, be approved, subject to the following conditions:

1. That the ground to be flooded by water by the proposed dam shall be cleaned (a) by the removal of all trees and stumps and their branches and roots of one inch or more in diameter; (b) by the destruction of vegetation as far as possible by burning over the area; and (c) by the removal of at least one foot in thickness of the soil upon which houses, barns, hog-pens, or other sources of pollution are, or have recently been located.

2. That the water so stored shall not be used for a public water supply, unless purified in a manner satisfactory to the State Board of Health.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Dr. Chapman, that the following plans for changes in the sewerage system of Piqua be approved; viz., that the storm water sewer running from Guernsey street to the river in said city be allowed to be used as a sanitary sewer and to be extended to the Favorite stove works, as shown upon the plans presented.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Mr. Hartzell, that plans be approved for a system of sanitary sewers for the village of Deshler, with outlet into Brush Creek at the east end of Plum street, and for a system of storm water sewers with five outlets to Brush Creek, upon the condition that sewage purification works be installed whenever in the opinion of the State Board of Health this may become necessary.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Crossland, that plans for a system of sewerage for the village of Wapakoneta with an outlet into the Auglaize River about one mile below the village, be disapproved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

The secretary presented a communication from Mr. J. P. Force, consulting engineer, requesting the approval of a change in the location of proposed sewage disposal works for the village of Westerville; also plans showing the final location of said works.

It was moved by Dr. Warner, and seconded by Dr. Chapman, that the change in location of sewage disposal works for Westerville, as proposed by the consulting engineer, be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

The secretary presented a communication from Mr. James Kinney, Jr., of Bellaire, requesting the Board's permission to make temporary use of the water of the Sunfish Creek for the village of Woodfield.

On motion of Mr. Hartzell, seconded by Dr. Crossland, it was voted to grant permission to make use of water from Sunfish Creek, taken from a point near the pump house, as a temporary supply for the village of Woodsfield, said supply not to be used or to be made available for domestic purposes, and to be discontinued at the earliest opportunity.

Those voting in the affirmative were Messrs Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

The secretary presented a report with plans for a water supply for the village of Canal Fulton.

It was moved by Mr. Hartzell, and seconded by Dr. Chapman, that plans for a water supply for the village of Canal Fulton to be obtained from springs located about one mile from said village, be approved.

Those voting in the affirmative were Messrs Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

A communication was presented from Mr. W. G. Moore, secretary of the board of water works trustees of New Richmond, requesting the Board to approve a change in the location of their water works intake.

It was moved by Dr. Warner and seconded by Mr. Hartzell that plans to change the intake of the water works of the village of New Richmond to a point about 300 feet down stream from the location of the present intake, be approved.

Those voting in the affirmative were Messrs Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

The secretary presented a communication from the Rev. Charles W. Tanneyhill, superintendent of the Lakeside Camp-meeting Association, requesting permission to make certain additions to the water supply of Lakeside.

It was moved by Mr. Hartzell and seconded by Dr. Chapman that the request of the Lakeside Association be granted to run an independent water pipe to the hotel upon their grounds, to be used for flushing water closets only, provided that the line be so connected as to be inaccessible for drinking or domestic purposes.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

Dr. Stanton reported upon proposed additions to the sewerage system of Cincinnati.

It was moved by Dr. Chapman and seconded by Mr. Hartzell that plans be approved for additional sewers for the city of Cincinnati as follows:

(a) For Bloody or Ross Run sewer from the end of the present sewer, about 300 feet north of Hopkins avenue to Mill Creek.

(b) For that part of Division No. 16 east of Gilbert avenue and north of Hewitt avenue, provided, as regards Division No. 16, that the city of Cincinnati will agree to purify the sewage in a manner satisfactory to the State Board of Health whenever deemed necessary for said Board.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

The secretary presented letters from the health officer of Berlin Center alleging that he had been assaulted while in the discharge of his official duties in connection with the burial of a dead body.

On motion of Mr. Hartzell the matter was referred to the secretary with power to act.

The secretary presented a letter from Mr. Jerry Overholser, secretary of Beaver Creek township board of health, at Alpha in regard to a nuisance caused by a large distillery at Trebeins, that township, emptying refuse into the Little Miami River and so polluting it that the water is unfit for stock purposes, and causing a very disagreeable odor.

On motion of Dr. Chapman this was referred to Dr. Warner for investigation.

Dr. Warner and Dr. Chapman, the committee to which was referred plans by the American Incinerating Company for a garbage furnace for Canton, reported that they had been unable to obtain any information warranting the approval of the same, and recommended that the plans be returned to the city council of Canton without action, and that the committee be discharged.

On motion of Mr. Hartzell this action was taken.

The secretary reported that the following plans had been acted upon by mail vote:

An additional water supply for the city of Canton, to be obtained from drilled wells located upon what is known as the Union Dam property; approved.

A water supply for the village of Paulding, to be obtained from three 8-inch drilled wells, known as Numbers 1, 2 and 9, and located in the northeastern part of the village at the corner of Walnut and Caroline streets; approved.

An additional water supply for the village of Shreve, to be obtained from Sheard Spring, located in the northeastern part of the village; approved.

A water supply for the city of Findlay, to be obtained from wells drilled in the bottom of an old lake in what is known as "Limestone Ridge" in Big Lick township, nine and three-fourths miles due east of the city; approved.

A water supply for the village of Westerville, to be obtained by deep wells located on what is known as Tract No. 2, in the northern part of the village; approved.

A new water supply for the city of Lancaster, to be obtained from wells located upon the tract of land lying just west of the northern part of the city; approved.

He requested that these matters be taken up and disposed of by a *viva voce* vote, confirming the action already taken in each case.

It was moved by Dr. Chapman, and seconded by Mr. Hartzell, that the action taken in regard to an additional water supply for Canton be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Warner, that the action taken in regard to a water supply for Paulding be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Crossland, that the action taken in regard to an additional water supply for Shreve be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was voted by Dr. Miller, and seconded by Dr. Stanton, that the action taken in regard to a water supply for Findlay be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Palmer, that the action taken in regard to a water supply for Westerville be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Stanton, that the action taken in regard to a new water supply for Lancaster be confirmed.

Those voting in the affirmative were, Messrs. Stanton, Crossland, Warner, Chapman, Palmer, Miller and Hartzell.

In the negative, none.

On motion of Mr. Hartzell, the retiring president and the secretary were appointed delegates to the conference of State and Provincial Boards of Health of North America, to be held in New Haven, Conn., October 28 and 29, 1902.

There being no further business the Board adjourned to meet in Cleveland, October 15, 1902.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

To the President and Members of the Ohio State Board of Health:

GENTLEMEN:—Your secretary begs leave to submit the following report for the period since the last regular meeting, April 23, 1902.

The Comings Health Bill, as amended, became a law May 7th. Five thousand copies of the law were printed and two copies sent to each board of health. The proceedings of the meeting of the State Board of Health with superintendents of schools, were printed—7,500 copies—and copies sent to each board of health and to each superintendent of public schools. Copies, as usual in the distribution of our documents, were also sent to the various State Boards of Health, sanitary journals, to certain public libraries, and to persons who wrote requesting them.

The 15th Annual Report of the Board was properly distributed.

Smallpox has continued to prevail. Since the last meeting of the Board 964 cases and fifty deaths were reported, distributed by counties as follows:

County.	Place.	Cases.	Deaths.	County.	Place.	Cases.	Deaths.
Allen	1	1		Lorain	1	9	1
Ashtabula	2	6		Lucas	3	19	
Auglaize	2	2		Mahoning	1	2	
Belmont	3	15	2	Meigs	2	8	
Butler	4	39		Mercer	3	12	
Carroll	1	1		Miami	1	5	
Clark	1	4		Monroe	3	23	1
Clermont	1	1		Montgomery	2	12	
Clinton	3	4		Muskingum	1	1	
Crawford	1	1		Paulding	3	11	
Cuyahoga	3	239	42	Perry	1	1	
Darke	1	1		Portage	1	1	
Fayette	3	10		Putnam	5	54	1
Franklin	2	35		Ross	1	7	
Gallia	3	15		Sandusky	2	24	
Geauga	1	1		Scioto	3	30	
Greene	1	13		Shelby	1	6	
Hamilton	12	191	1	Stark	1	6	
Hancock	1	1		Tuscarawas	1	1	
Harrison	2	5	1	Van Wert	1	14	
Highland	2	80		Vinton	1	1	1
Huron	1	1		Warren	2	8	
Jefferson	1	29		Wayne	1	1	
Lake	1	1		Williams	2	2	
Licking	1	2		Wood	1	8	
				Total 50 counties...	98	964	50

Investigations of smallpox have been made as follows:

By Dr. Stanton at Harrison, Reading, Winton Place, Lebanon, Greenfield, New Richmond and Lockland.

By Dr. Chapman at Springfield and Washington townships, Lucas county, and Glandorf, in Putnam county.

Of the Medical Inspectors, Dr. Moninger investigated smallpox at West Milton, Clay township, Scioto county, Middleport, Mifflin township, Franklin county, and Springfield.

Dr. Collamore visited Ottawa township, Putnam county.

Dr. Lyle visited Harrison and Reading.

Dr. Laudick visited Ottawa, Putnam county.

Dr. Heinlein visited Clarrington, Monroe county, and

Dr. Corlett visited Wakeman, Huron county.

The last report of smallpox from Cleveland was on May 24th. The health officer has reported but thirty-seven cases there since April 24th. The public health reports of the Marine Hospital Service give from December 28, 1901, to June 14, 1902, 157 cases and twenty deaths. On June 20th, I received a letter from our medical inspector at Cleveland, Dr. Corlett, in which he states that on June 19th he was at the smallpox hospital and saw there 113 cases; that eleven cases were reported on June 18th.

I telephoned Dr. Miller of this report, informing him of the fact that no cases were being reported to the State Board and requested him to investigate and report to the Board at this meeting the conditions found there.

The Board has probably seen articles that have been going the rounds of the medical and sanitary journals representing how the present health officer had wiped smallpox out of Cleveland by abolishing vaccination and substituting disinfection. The health officer is quoted as saying:

"It affords me great pleasure to state that the house-to-house disinfection freed Cleveland from smallpox. Since August 23, 1901, to this very hour of writing, not a single case has originated in this city, but seven cases were imported. The disease raged here uninterruptedly since 1898. We relied upon vaccination and quarantine as the most effective weapons to combat it, but in spite of all our efforts it doubled itself every year and was in a fair way of repeating the record of last year, as in 1900 we had 993 cases and from January 1st to July 21, 1901, the number amounted to 1,223. On this date I was called to take charge of the health office, with seventeen cases on hand. Cleveland is now free from smallpox, and from the worst infected city it has become the cleanest."—*Physical Culture*.

It will be recalled that the health commissioner of Buffalo demanded that the State Board of Health should take charge of the situation in Cleveland, and threatened to quarantine against that city unless proper measures were promptly put in force. A committee of our Board met the mayor, health officer and president of the council of Cleveland on May 20, '01, and presented in writing certain quite rigid requirements for controlling the smallpox situation. The Cleveland authorities agreed to carry out these measures without regard to expense, and did so in every essential particular. It was shown at that time that from January 1st to May 18, 1901, 934 cases of smallpox had been reported to us in Cleveland. One hundred and ninety-five cases were reported

for the four weeks ending May 18th. There were 114 cases reported during the next four weeks, and sixty during the following four weeks, ending July 13, 1901. The present health officer of Cleveland began his term of office on July 20, 1901. For the week ending July 20th there was but one case reported; and from that time on no cases of smallpox were reported until October 4, 1901. It was thus that smallpox was wiped out of Cleveland, only to return, as it now appears.

In addition to the investigations of smallpox just noted the following visits have been made:

The president and secretary attended the smallpox conference at Indianapolis; the president investigated proposed additional sewerage for Cincinnati; Mr. Hartzell investigated the proposed water supply for Canal Fulton; the secretary investigated the proposed water supply for Westerville, and attended the American Congress on Tuberculosis at New York; the engineer visited Paulding, Glouster, Mineral City, Shreve, Westerville, Findlay, Lancaster and Mt. Gilead in reference to proposed water supplies. Dr. Warner, Dr. Chapman and the engineer investigated the disposal of garbage at Toledo. The reports of these investigations that have not already been submitted will be made, I presume, at this meeting.

On May 6th I called the attention of the council of Springfield to the report that they were to extend their sewerage system, and asked that plans be submitted for approval. The mayor replied that the matter was before council and that the city engineer would send plans as soon as they were adopted. Nothing further has been heard from there.

May 14, Mr. Flynn visited Mineral City, the corporation clerk having sent word that they were going to extend their water supply. Mr. Flynn reported that they had not adopted definite plans. May 31st, samples of water were received, which showed well on analysis, but no information was given as to local sources of possible contamination. The authorities were notified of the results, and told that they must furnish definite plans, with necessary information, for approval.

The authorities of Pleasant Ridge were requested to furnish information concerning a statement in the Engineering Record that they intended to change their water supply. They replied that they proposed to contract with the city of Cincinnati to furnish them water from their public supply. This supply has already been approved by the Board.

June 13th the mayor of Chillicothe telephoned that their water supply was causing much complaint on account of bad taste and odors.

He requested an examination. This was made, the chemist reporting as follows:

REPORT OF EXAMINATION OF WATER FROM CHILLICOTHE.

(Parts per Million.)

Source of Sample.	Reservoir.	Well.	Hydrant.
Number of sample	2275	2276	2277
Color	7.	35.	12.
Turbidity	none	clear at first then distinct.	clear at first then slight.
Sediment	none	slight	trace
Odor	none	sulphurous	trace
Oxygen required .....		.77	.86
N. as ammonia free....		.021	.054
N. as ammonia albumi- noid .....		.034	.051
Nitrogen as nitrates ..	none	none	none
Nitrogen as nitrites...	none	trace	none
Chlorine	10.4	15.3	10.7
Alkalinity		270.	247.
Incrusting constituents.		74.	53.
Total solids		471.	412.
Volatile & combustible.		88.	95.
Bacteria per c c	550.	4.	29.
Colon present	yes	no	no
Iron		1.6	.6

I sent the mayor the following communication:

COLUMBUS, OHIO, June 24, 1902.

Mr. Wallace Yaple, Mayor, Chillicothe, Ohio.

DEAR SIR:—We have just finished our examination of the sample of water sent in by you on June 15th. I enclose herewith a copy of the chemist's report.

I would call your attention, especially, to his comment as regards chlorine and bacterial findings in the reservoir and in the well samples. You will see that the well water is considerably higher in chlorine than is that in the reservoir, and the only way we can account for this is that the well water must be mixed with water which is much lower in chlorine. The presence of colon bacilli in the reservoir sample leads to the suspicion that not only is water being admitted to the reservoir which does not come from the well, but that this is a polluted water

receiving sewage. I would ask whether you at any time pump water into the reservoir from the river.

I shall be glad if we can be of service to you.

Yours truly,

(Signed) C. O. PROBST,

Secretary.

A request was received from Messrs. Riggs and Sherman, engineers, to investigate proposed sewerage for Deshler. The president appointed Dr. Chapman a committee to investigate and report.

The Danbury township board of health refused to appoint the health officer nominated by the Lakeside Company, and agree to pay the salary of the health officer named by them. I therefore notified them, in accordance with instructions, that Mr. O. P. Napier, their appointee, had been approved by the State Board.

The American Congress on Tuberculosis, which I attended as a delegate, was held at the Hotel Majestic in New York, June 2-4th. About 150 delegates were present. A large number of papers were presented, many of which had to be read by title. One of the most important was by Dr. Adami, of McGill University, Montreal, in which he boldly attacked Koch's position as regards the communicability of animal tuberculosis to man. The congress was practically unanimous in supporting Dr. Adami in his contention that the disease is identical in man and beast, and may be communicated from one to the other.

The following resolution, prepared by the committee on resolutions, of which I had the honor to be made chairman, was unanimously adopted:

"WHEREAS, Tuberculosis is an infectious disease, ordinarily communicated from person to person, by means of the dried sputum of a consumptive patient, and

"WHEREAS, The spread of tuberculosis could be largely controlled by proper care of such sputum and the enforcement of comparatively simple measures, therefore, be it

"*Resolved*, By the American Congress of Tuberculosis, that the health authorities be urged to disseminate to the widest extent possible, through the public press and otherwise, correct information as to the manner in which this disease is produced and the means to be employed for its prevention."

A resolution was also adopted favoring reports of cases of pulmonary tuberculosis by the attending physician.

Up to this meeting, the congress was practically auxiliary to the medica-legal society, For some reasons the physicians of New York,

as a rule, and the medical profession of Pennsylvania, Massachusetts, and some other New England states, were hostile to the medico-legal society and therefore gave the congress no support. The congress had been largely in the hands of Mr. Clark Bell, president of the medico-legal society. It was deemed best to establish an independent organization. A constitution was adopted. Dr. Daniel Lewis, health commissioner of the state of New York, was made president; Dr. George Brown of Atlanta, Ga., secretary, and Dr. P. H. Bryce of Toronto, treasurer.

The time and place of next meeting was left to the advisory board.

The meeting adjourned with the general feeling that the congress had been placed on a substantial, permanent basis, and would receive the support of those actively interested in the prevention of tuberculosis.

Respectfully submitted,

C. O. PROBST,

Secretary.

OCTOBER MEETING.

A regular meeting of the State Board of Health was held at the Hollenden Hotel, Cleveland, October 15, 1902.

All the members were present except Dr. Palmer, who was detained at home by illness.

The meeting was called to order by the president, Dr. Stanton, at 8:00 p. m.

The minutes of the last meeting were read and approved.

Mr. G. A. Gessner of Toledo, representing Messrs. Riggs and Sherman, consulting engineers of that city, presented plans for a sewerage system with disposal works for the village of Wyoming.

Mr. John P. Force, consulting engineer, of Columbus, presented plans for a system of sewerage for the city of St. Marys; and also for a system of sewers with sewage disposal works for the village of Plain City. He stated further that he had been engaged to prepare plans for a system of sewerage for the city of Troy, and requested to be informed whether the board would permit of a temporary disposal of crude sewage from said city into the Miami River.

Dr. W. W. Brand, health officer of Toledo, presented plans for the disposal of the sewage from the smallpox hospital of that city.

These various questions were referred to executive session.

Dr. Martin Friedrich, health officer of Cleveland, addressed the Board relative to the smallpox situation in that city.

The secretary presented his quarterly report, which was approved and ordered filed for publication.

Dr. Stanton spoke of some investigations he had been making of the condition of Mill Creek.

The secretary presented a communication from Dr. Ohlmacher, superintendent of the Ohio Hospital for Epileptics, stating that a slaughter-house used by the hospital, but not belonging to it, was in a very bad sanitary condition. He communicated a request from the board of trustees of that institution for an investigation by the State Board of Health.

On motion of Dr. Miller it was voted to send a committee to investigate and report.

The secretary presented a map showing the location of a storm water sewer for the city of Portsmouth, with a communication from

the city civil engineer, Mr. B. C. Bratt, in reference thereto, asking the Board to approve the outlet into Lawson's Run.

It was moved by Dr. Warner, and seconded by Dr. Miller, that this outlet for said sewer be approved upon the condition that an ordinance be passed by the council of Portsmouth prohibiting the use of said sewer for any purpose except for storm water and cellar drainage.

Those voting in the affirmative were Messrs. Stanton, Crossland, Miller, Warner, Chapman and Hartzell.

In the negative, none.

At this juncture Dr. Stanton announced that Dr. Crossland, president-elect, would take the chair. Fitting remarks were made by the retiring president and the president-elect, after which Dr. Crossland assumed the duties of president.

The chair appointed Dr. Warner and Dr. Stanton a committee to investigate and report upon the condition of the slaughter house at the Ohio Hospital for Epileptics.

The secretary presented plans for an outfall sewer for the village of Ada, as prepared by Mr. A. R. Taylor, county surveyor, of Kenton, which had been submitted for approval; and also a copy of a report by the engineer of the Board, Mr. Flynn, upon his investigation of the proposed sewer and outlet.

It was moved by Dr. Stanton, and seconded by Dr. Crossland, that the plans for this outfall sewer for the village of Ada be disapproved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Miller, Warner, Chapman and Hartzell.

In the negative, none.

The secretary presented the matter of approving a public water supply for the village of Geneva. He recalled the fact that the Board had approved a water supply for this village conditional upon the satisfactory operation of mechanical filters which were to be introduced and which were to be tested during a ten days' run. He presented a communication from Mr. B. F. Hewit, village engineer, with a report from Mr. P. L. Hobbs, of Cleveland, upon tests of the filters which he had conducted.

It was moved by Dr. Warner, and seconded by Mr. Hartzell, that the water supply and filters for the village of Geneva be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Miller, Warner, Chapman and Hartzell.

In the negative, none.

The question of approving a water supply for West Milton was taken up. The secretary presented a report from the engineer, who had visited West Milton and examined the location of the spring from

which it was proposed to obtain a supply, and also a report of the chemist and bacteriologist which showed the water to be of good quality.

It was moved by Dr. Chapman, and seconded by Dr. Miller, that the water supply for West Milton be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Miller, Warner, Chapman and Hartzell.

In the negative, none.

The secretary reported that he had learned that the village of New Matamoras had constructed a system of sewerage, and introduced a public water supply without the approval of the State Board of Health. The authorities of New Matamoras claimed to be unaware of the law requiring such approval. He presented a report of the engineer, who had visited New Matamoras and investigated their sewerage system and water supply.

It was moved by Mr. Hartzell, and seconded by Dr. Chapman, that the sewer system of New Matamoras be approved.

Those voting in the affirmative were Messrs. Stanton, Crossland, Miller, Warner, Chapman and Hartzell.

In the negative, none.

In regard to the water supply, on motion of Dr. Stanton, the secretary was instructed to say to the mayor and council of New Matamoras that the Board could not approve of the use of the Ohio River water for domestic purposes without filtration; that as the water works had been completed the Board would not disapprove them but would urge that a proper filtration plant be added at the earliest time possible.

The secretary reported that he had been informed a few days before, privately, that the commissioners of Lucas county were building a sewer to discharge into the Maumee River; that this was being done to abate a nuisance in the village of Maumee.

On motion of Dr. Chapman, the secretary was instructed to send a letter to the county commissioners calling their attention to the law requiring the approval of the outlet of said sewer.

Plans were presented, and a report by the engineer, Mr. Flynn, for a sewer district in the western part of the city of Norwalk, which the Board was requested by the city engineer of Norwalk to approve.

It was moved by Dr. Stanton, and seconded by Dr. Warner, that the plans for this sewer district be approved, but only as a temporary expedient, and that the Board should express its opinion that the question should be taken up at once of providing a comprehensive system of sewerage for the entire city with proper sewage purification works.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Stanton, that the plans for sewers and sewage disposal for the village of Wyoming as presented, be approved.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Stanton, that the authorities at Troy be notified that the Board would approve of the discharge of unpurified sewage into the Miami River at a proper point, but only upon the condition that sewage purification be installed whenever the State Board of Health may deem it necessary.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

On motion of Dr. Chapman, and seconded by Dr. Miller, it was voted to approve the plans for sewers and sewage purification for the village of Plain City.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

On motion of Dr. Chapman it was voted to send a committee to investigate the proposed sewerage system for the city of St. Marys.

The president appointed Dr. Warner as this committee.

On motion of Mr. Hartzell, and seconded by Dr. Miller, it was voted to approve the plans for sewage purification for the Smallpox Hospital at Toledo.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

On motion of Dr. Warner, the secretary was instructed to have the engineer inquire into the building of sewers on the West Side in the city of Columbus.

The secretary spoke of the great prevalence of tuberculosis in the Ohio Penitentiary and the reports relative to the bad sanitary condition of that institution.

On motion of Dr. Stanton, Drs. Warner and Probst were appointed a committee to call upon the governor in reference to having an investigation made of the sanitary condition of the penitentiary.

The secretary reported that the following plans had been acted upon by mail vote:

Changes in the public water supply of Lima were approved upon the condition that purification works, satisfactory to the Board, should be installed whenever this may be deemed necessary by the State Board of Health.

Garbage disposal works for the city of Canton, to be constructed by the Dixon Garbage Crematory Company, were approved.

A water supply for Kenyon College, Gambier, to be obtained from a group of wells in the valley of the Kokosing River near the crossing of the C. A. & C. railroad, was approved.

A system of sewerage with sewage disposal works for Wapakoneta, the plans providing in brief for the delivery of all sanitary sewage to a point west of the village near the Catholic cemetery, where the sewage is to be purified by septic tanks and filters, was approved with the provision that the disposal works be completed and put in operation by the time the main sewers and connections with existing storm sewers have been made.

A public water supply for the village of Loudonville, to be obtained from wells sunk in the drift in the valley of Black Fork, to be pumped to a covered reservoir, was approved.

A system of storm water sewers for the village of Payne, arranged so that they could also receive sanitary sewage, with an outlet into Flat Rock Creek at a point 600 feet west of the eastern corporation line, was disapproved.

A public water supply for the village of Ada, to be obtained from four wells in the eastern part of the village, near the P. Ft. W. and C. railroad, was approved.

A public water supply for the village of New Vienna, to be obtained from a number of wells located in the valley of a small run in the southeastern part of the village, was approved.

A public water supply for the village of Mt. Gilead, to be obtained from drilled wells located on North street between Rich and Iberia streets, was approved.

He requested that these matters be taken up and disposed of by a *viva voce* vote, confirming the action already taken in each case.

It was moved by Dr. Stanton, and seconded by Dr. Warner, that the action taken in regard to the water supply of Lima be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Miller, and seconded by Dr. Chapman, that the action taken in regard to garbage disposal works for the city of Canton be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Warner, that the action taken in regard to the water supply for Kenyon College at Gambier, be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Chapman, and seconded by Dr. Stanton, that the action taken in regard to sewerage and sewage disposal works for Wapakoneta, be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Crossland, and seconded by Mr. Hartzell, that the action taken in regard to a water supply for Loudonville be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Mr. Hartzell, that the action taken in regard to a system of storm water sewers for Payne be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Warner, and seconded by Dr. Chapman, that the action taken in regard to the water supply for Ada be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Dr. Stanton, and seconded by Dr. Miller, that the action taken in regard to a water supply for New Vienna be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

It was moved by Mr. Hartzell, and seconded by Dr. Miller, that the action taken in regard to a water supply for Mt. Gilead be confirmed.

Those voting in the affirmative were Messrs. Stanton, Miller, Crossland, Warner, Chapman and Hartzell.

In the negative, none.

The following reports, not calling for action by the Board were submitted by the secretary:

a. A report of an investigation by the engineer of a nuisance at Nelsonville, arising from defective sewerage.

b. A report of an investigation by the engineer of a nuisance in Beaver Creek township, Greene county, arising from the discharge of the waste from a distillery at Trebeins into the Little Miami River.

c. A report of an inspection by Dr. Chapman, of a school building in District No. 4, Madison township, Sandusky county.

d. A report by the engineer upon a nuisance at Clyde, alleged to be caused by the pollution of a stream by refuse from a large kraut works at that place, and the effluent from their sewage disposal works.

e. A report of the engineer upon an investigation of a nuisance at Gallipolis, caused by defective sewerage.

f. A report of the engineer upon an investigation of a nuisance northeast of Salem, caused by defective drainage.

g. A report of the engineer upon an investigation of a nuisance at Bluffton, due to a lack of sewerage and to the pollution of Little Reilley Creek.

h. A report of Mr. Horton, the bacteriologist, of an investigation of typhoid fever at Berwick.

i. A report by Dr. Stanton upon an investigation of typhoid fever at the St. Aloysius Orphans' Asylum near Bond Hill.

j. A report by Dr. Stanton upon an investigation of an alleged nuisance arising from defective sewerage in Hartwell.

The secretary reported that the city of Wellsville had asked the Board's approval of a change in the location of the intake pipe in the Ohio River, located a short distance below the plant of the American Sheet Steel Company; that later the superintendent of the water works reported that they were expecting to obtain water from wells after the system in use at Gallipolis, Ohio, and that he had been notified that complete plans would have to be furnished and samples of the water examined before the supply could be approved.

The secretary also presented a report upon a proposed sewer for Waterville. The report showed that it was proposed to discharge their sewage into the Miami and Erie canal. The authorities at Waterville had been notified that they must obtain permission of the State Board of Public Works for such use of the canal, and when such permission had been obtained the Board would act upon their plans.

There being no further business, the Board adjourned.

Attest:

C. O. PROBST,
Secretary.

QUARTERLY REPORT OF THE SECRETARY.

To the President and Members of the Ohio State Board of Health.

GENTLEMEN:—Your secretary begs leave to submit the following report for the time intervening since the last meeting of the Board, June 27, 1902.

Investigations have been made by the Board as follows:

The president, Dr. Stanton, visited St. Aloysius Orphan's Asylum, near Cincinnati, on account of typhoid fever. The cause was found to be a polluted well, which was closed. He also visited Hartwell, Arlington Heights and Lockland on account of complaints of nuisances arising from defective sewerage. He investigated an outbreak of eruptive disease in Butler county that proved to be smallpox; Lindale, Clermont county, and twice met with the committee in Cleveland, appointed to look after the smallpox situation there.

Dr. Palmer made an investigation of smallpox in Trumbull township, Ashtabula county.

Dr. Miller investigated the sanitary condition of Bulah park, near Cleveland.

Dr. Chapman investigated the sanitary condition of the school house in District No. 4, Madison township, Sandusky county.

The engineer, Mr. Flynn, has visited Lima, Gambier (Kenyon College), New Matamoras, Loudonville, Ada, Upper Sandusky, Freeport and West Milton, to investigate the sources of proposed water supplies. He visited Ada, Fayette and Westerville to investigate proposed sewerage systems; and Gallipolis, Bluffton, Linwood Park near Vermilion, Trebein's Station, Salem and Nelsonville, where nuisances were complained of, arising in most cases from lack of sewerage or improper drainage. Most of these latter cases were of a nature not requiring any special action on the part of the Board and were disposed of by a letter of instructions or advice from the secretary.

The engineer has also, in continuance of the investigation which has been under way for some time of the character, cost, condition and efficiency of the sewage disposal plants in this state, visited Clyde, Toledo State Hospital, Kenton, Mansfield, Granville, (Shepardson College), Glenville, East Cleveland, Lakewood and Oberlin.

The bacteriologist, Mr. Horton, visited Findlay and examined a number of wells in connection with a typhoid fever epidemic prevailing there, and also visited the village of Berwick, Seneca county, for the same purpose.

The secretary visited Milan, Sandusky, Springfield, Norwalk twice, Marion twice, and Cleveland three times, on account of smallpox.

The following places have been visited by the medical inspectors of the Board to investigate smallpox.

Marion, Edgerton, Frazeysburg, Liberty township, Wood county; Weston, Washington township, Lucas county; St. Albans township, Licking county; Middletown, Old Fort, Pemberville, Medina township, Medina county; Bettsville, Cuyahoga Falls, Belleville, Guilford township, Medina county; Lodi, Newton Falls, Pleasant township, Clark county; Harmony township, Clark county; Mt. Pleasant, Union township, Knox county; Hanging Rock, Oxford township, Delaware county; West Mansfield, Springfield, Miffin township, Franklin county; Columbus, Millersburg, New Somerset, Waterloo township, Athens county; Ironton, West Leipsic. Smallpox was found at all of these places except at Pemberville, Lodi and Mt. Pleasant.

Reports for most of these investigations (except for smallpox) have been submitted to the Board. The others are in the secretary's hands, to be presented if called for. A few only require any action of the Board and these will be submitted latter.

A report was made of the smallpox outbreak at Norwalk, and some of the troubles resulting from the quarantine restrictions of surrounding towns. The disease was promptly arrested, as I ventured to predict would be the result, on my first visit. There occurred there in all 49 cases and 6 deaths. The courts decided that the board of health of Ridgefield township had exceeded its powers in attempting to enforce an unreasonable quarantine rule, prohibiting a man from going from one part of his farm to another to care for his stock. This same board stretched a large rope across a public highway, and left the place unguarded and unlighted at night. A woman riding a bicycle ran into the rope and was thrown from the wheel and broke her leg. Suit has been brought against the township for damages.

The board of health of Milan, that stopped the running of electric cars, was declared by the Supreme Court to have exceeded its authority. The superintendent of the road, who refused to pay a fine for bringing a car into Milan and was sentenced to jail, was first released by the Supreme Court on habeas corpus proceedings, and then permanently discharged when the case came to trial. The board had attempted to enforce an unreasonable regulation.

The epidemic at Cleveland has been of much severity, there having been from March 1st to October 11th, the date of their last report, 1041 cases and 174 deaths, a death rate of 16.7 per cent. The committee of the Board has had several conferences with the health officer and advisory board of four physicians of Cleveland, appointed to aid the health officer. Vaccination has been pushed there in every way possible. The health department has issued to vaccinators in its employ nearly 300,000 vaccination tubes. The results of the work done are beginning to show. For the week ending October 4th there were 56 cases reported; for the week ending October 11th but 24 cases. For some time previous to October

4th the weekly case rate averaged about 80. I think we may feel confident that the epidemic there is now under control.

The total number of cases of smallpox reported in the state from June 1st to October 12th, was 2248 with 212 deaths. Since the outbreak in 1898 to October 11th, 1902, there have been 14,224 cases, 376 deaths, giving a death rate of 2.6 per cent.

By years the cases and deaths have been as follows :

1898	669	5	.7 per cent.
1899	1756	32	1.8 per cent.
1900	3229	44	1.4 per cent.
1901	4880	58	1.2 per cent.
1902	3690	237	6.4 per cent.

During 1902 the death rate has been rapidly increasing. The cases and deaths reported have been as follows :

January 1st to May 31st	1442	25	1.7 per cent.
June 1st to August 15th,	1262	84	6.6 per cent.
August 15th, to October 11th	986	128	13.8 per cent.

The committee of the house of representatives, appointed to consider the municipal code bill, appointed September 8th for a hearing on the board of health question. A letter was sent to every municipal board of health in the state, giving the provisions of the so-called Governor's code relative to health boards, and inviting them to have a representative present on that day, or to write to the chairman of the committee expressing their views upon the subject. A preliminary meeting of delegates was called at the office of the Board at 8 a. m. of that day. The legislative committee of the Board, Drs. Chapman, Warner and Probst, and about 30 delegates were present. It was agreed that we would endeavor to preserve the Comings Act of last winter, and to have established a board of health of five members in every city and village. The committee of the house reported in favor of this plan, and their report was adopted by the house. The senate passed a bill giving the powers and duties of boards of health to the boards of public safety. A conference committee from both houses now have these two bills under consideration. The house bill also carries a provision that plans for systems of sewerage, adopted by any city or village, must be approved by the State Board of Health; and further, that no ordinance for the construction of sewerage systems shall be valid unless approved by said Board. This provision does not obtain as regards water supplies, as works of this kind are paid for by general assessment and are under the control of the board of public service, while sewers are constructed by council, and by special assessment.

An interesting case has come up at Defiance. The council repealed the ordinance establishing the board of health, ousting the old members

(for political reasons) and appointing another board, who appointed a new health officer. Being appealed to, I held that council had no authority to abolish the board of health. The old board refused to yield their office, and brought suit against the council to compel them to pay the salary of the health officer. Judge Hubbard, of the Common Pleas Court, October 6th, decided that the old board is still the legal board. The case was appealed. This case is of great interest because if council, for political or other insufficient reasons, can abolish the board of health at any time, our efforts to give permanency to these boards, by having members appointed for five years, will have been futile.

Many complaints have been made of late of the intolerable pollution of Mill Creek. As this creek had only been temporarily omitted in the general investigation of the streams of the state, it was decided, after conference with the president, to make a thorough investigation of its condition. Dr. Stanton agreed to supervise the work, and the engineer is now engaged upon it.

The work in the laboratory is going on in a satisfactory manner. We have been making a series of weekly examinations of the Toledo water supply with special reference to varying turbidities with the view of determining the best methods for its purification. The city has engaged Mr. Hazen and Mr. Benzenburg, as consulting engineers, to report upon improving the water supply. A copy of all analyses made was furnished the engineers, and they promise to be of considerable value to them.

An interesting case is being investigated where it is suspected that a veterinarian inoculated himself with tuberculosis in making a post mortem examination of a cow that died of that disease. An examination is being made of a case of suspected rabies in a cow. Considerable work is being called for in the examination of wells suspected to have caused typhoid fever.

Taking it for granted that the Board would desire to hold a joint meeting of the State and local boards of health in January, I have partly arranged for such a meeting. I am glad to announce that Dr. Corlett, of Cleveland, has consented to give an address on smallpox, illustrated by lantern slides, of which he has a remarkably fine collection.

I would call attention to the coming meeting of the American Public Health Association to be held in New Orleans, La., beginning December 8, 1902.

Respectfully submitted,

C. O. PROBST,
Secretary.

PUBLIC WATER SUPPLIES.

REPORT ON A PROPOSED WATER SUPPLY FOR ADA.

Application was made by the mayor of Ada for the approval of the State Board of Health for a water supply proposed for that village. Accordingly, Mr. Flynn, the engineer, was sent to Ada on August 11, 1902, and in company with Professor Young, a member of the Ada Water, Heat and Light Company, which is putting in the plant, made the necessary investigation. Mr. Flynn reported as follows:

"The supply is to be obtained from four wells, two of which were completed, located in the eastern part of the village near the P., F. W. and C. R. R. The wells are eight inches in diameter and 152 feet deep, going through twenty-five feet of soil and clay, five or six feet of sand and gravel, and the balance in limestone in which the water is found. The wells are cased to the rock and the site is quite free from local pollution except that caused by two or three vaults some distance removed and not of such a nature as to influence the deep-seated water."

A chemical and bacteriological sample was collected and returned to the laboratory for analysis.

Mr. Horton, the chemist, reported upon these as follows:

REPORT OF EXAMINATION OF WATER FROM ADA.

(Parts Per Million.)

Source of sample	drilled well.
Number of sample	2388.
Color	12.
Turbidity	clear, then slight.
Sediment	slight.
Odor	none
Oxygen required .....	.84
N. as ammonia free .....	.150
N. as ammonia albuminoid .....	.032
Nitrogen as nitrates	none
Nitrogen as nitrites	none
Chlorine	10.7
Alkalinity	400.
Inc. const.	none
Total solids	603.
Volatile and combustible	153.
Bacteria per cc	550.
Colon bacilli present	no
Iron .....	.5

"The small amount of turbidity is of little moment as it will disappear with opportunity for sedimentation. As regards organic purity, the results indicate a deep water of a suitable quality for a public supply. The water is rather hard, but fortunately for steam purposes, the sample indicates the absence of hard scale-forming substances. The alkalinity shows there will be some sludge formed in boilers but this is more easily removed than the hard scale. As indicated by the findings, the water requires considerable soap for domestic use.

"The analysis of the sample shows a usable water."

The Board voted to approve this supply, and the Mayor, Mr. F. M. Ramsdell, was so notified September 2, 1902.

REPORT ON PROPOSED ADDITIONAL WATER SUPPLY FOR BELLEFONTAINE.

Application was made by Mr. C. F. Martin, superintendent of the Bellefontaine water-works, for the Board's approval of an additional water supply proposed for that city.

Mr. Flynn, the engineer, was sent to Bellefontaine July 30, 1901, and in company with Mr. Martin made investigation and reported as follows:

"The present water supply of Bellefontaine is from four 8-inch wells 160 feet deep, eighty feet of which is in the limestone rock. Above the rock is an extensive bed of gravel reaching to within six feet of the surface, the top layer consisting of the surface soil and a stratum of clay.

"Owing to the increasing consumption, the supply from the deep wells is now inadequate at times. To increase the supply it is proposed to use some of the sub-surface water found in the gravel bed above the rock, collecting the same in a dug well twenty-five feet in diameter and twenty-five to thirty feet deep. An air lift is also to be installed and one or more of the deep wells pumped by this method, the discharge going to the large dug well and mixing with the water from the gravel.

"This dug well is to be located in the rear of the present pumping station, on rather low ground bordering a small tributary of Bluejacket Creek. South of the lot in which the well is to be dug is the residence of the water-works engineer, with its attending barn, outhouses, etc.

"It would probably be advisable to divert the drainage from this place to the above mentioned run by means of a suitable ditch.

"East of the grounds, across the road in front of the station, is the county fair grounds, which drain to the small stream running along the northern part of the water-works property. The stables and outhouses of the fair grounds are back from the run and from the road and

probably no danger need be anticipated from these, especially if the channel of the small run is straightened and cleaned and kept in such a condition as will allow no water to stand in pools.

"It is proposed to construct the lower part of the well of loose stone work for the free admission of the water, but to make the upper part of brick laid in cement. This brick work is to be extended some four feet above the present surface of the ground and the surrounding area filled with clean earth and gravel so as to divert from the well all surface drainage.

"The sample collected July 9th, by Mr. Martin was taken from the trench excavated from the old suction lines. This was hardly a fair sample of the ground water, owing to the fact that the boilers had been but recently blown out and some of the water allowed to run into the trench. A second sample was taken from this trench on the day of inspection, when conditions were more favorable."

Another well was put down north of the pumping station seventy feet deep, passing through gravel, hardpan and blue clay. A sample of this water was sent in by the secretary of the water-works January 6, 1903, and the report of Mr. Horton, the chemist, is given below:

REPORT OF EXAMINATION OF WATER FROM BELLEFONTAINE.

(Parts per Million.)

Source of sample	Driven well 100 feet N. of pump house.
Number of sample	2059
Color .....	.08
Turbidity	mere trace
Sediment	trace
Odor	none
Oxygen required .....	.56
N. as ammonia free .....	.004
N. as ammonia albuminoid .....	.014
Nitrogen as nitrates	none
Nitrogen as nitrites .....	.001
Chlorine	2.3
Alkalinity	272.
Incrusting constituents	18.
Total solids	359.
Bacteria per c c	*23.
Iron .....	.8

*No intestinal bacteria present.

"The results show a water free from organic matter, and of good appearance, with, however, a trace of iron precipitated. This water, like most waters of the state, is fairly high in soap consuming power, but fortunately the incrusting material of the present sample is low. The results indicate a water that will be acceptable as a public supply as far as the quality is concerned.

"This sample was derived from a greater depth than a previous one from the same neighborhood and differs chiefly from the former sample in the absence of nitrates."

The Board voted to approve this supply, to be obtained from a driven well seventy feet deep located about 100 feet north of the pumping station.

Notice was sent to the water company January 20, 1902.

REPORT ON THE PUBLIC WATER SUPPLY OF BRADNER.

Application was made by Mr. H. C. Ahlf, village clerk of Bradner, for the Board's approval of the water supply of that village.

The secretary visited Bradner November 9, 1901, investigated the supply and made the following report:

"In 1896 the village authorities of Bradner put down a well to afford water for fire protection. They were ignorant, they claim, of the law requiring their plans to be approved by the State Board of Health. The well is 102 feet deep, in lime-rock with practically no soil covering. The water was pumped by a windmill to a tank, and conducted by pipes to a central corner of the village. Later a boiler and pumps were added, and mains practically extended to all parts of the town.

"Recently the village voted to issue bonds for an electric light plant and to improve the water works, the two to be combined in one plant. It is proposed to use the present well and another to be bored near by, and have the combined power plant at the present pumping station, or to purchase land elsewhere and develop a new water supply. The majority of the citizens, it is alleged, favor the latter plan, while the majority of the council, who have the deciding voice, favor the former. The clerk of the village was instructed to request the State Board of Health to investigate and report.

"The present well is upon a lot sixty feet square, which is surrounded by privies and stables. It is in a low part of the village, the surface wash being towards the well. The surroundings could scarcely be worse. A limestone ridge traverses the village, out-cropping at many places. Over most of the built up area there is practically no soil over the rock, so that rains enter the rock without filtration. Privies are on the surface, some with boxes and some without. The public water supply, at present, is used only by a few persons for drinking, most all families having private wells.

"This village has a history of having considerable typhoid fever, the latest outbreak being two years ago. The private wells are bored twenty-five to thirty-five feet in the limestone, and cased with iron pipe. Many of them receive surface water, becoming roily after rains.

On account of the lack of a soil covering of the lime-rock, they must all be more or less liable to pollution. An abundant supply of pure water, with the abandonment of most of the private wells, is one of the needs of the village. The citizens, generally, would perhaps not admit this, as both the present public well and private wells are in good repute.

"The village is thriving, having grown in ten years from 400 to 1,200 inhabitants. It will soon need more water for various purposes. It now furnishes water to the Hocking Valley Railway, which passes through it. It is roughly estimated that at this time about 400 barrels a day are pumped in the winter season, and about 1,600 in the summer. The present well so far has supplied the demand. The surroundings and geological formation should condemn this well for domestic purposes. With its clustering privies it is like a powder magazine, needing but the match of typhoid infection.

"There is talk of purchasing an adjacent sixty foot lot, equally bad as to surroundings, upon which to locate another well. There can be no assurance that another well, so near the old one, would materially increase the present supply of water.

"The other proposition is to purchase about six acres of vacant land in the northwestern corner of the village. In this locality the rock for some distance about has a protecting cover of fine sand eighteen or more feet deep. The land can be purchased for \$1,200. It has on it a well which once furnished abundant water for a large oil refinery. It is believed to be of good quality. This could easily be determined. The surroundings are good and all indications point to this as a favorable site."

Samples of the present supply were submitted to the chemist for examination with the following results.

REPORT OF EXAMINATION OF WATER FROM BRADNER.

(Parts per Million.)

Source of sample	Well north Hocking Valley R. R. Sta.
Number of sample	1978
Color .....	.10
Turbidity	none
Sediment	none
Odor	none
Oxygen required	1.24
N. as ammonia free .....	.094
N. as ammonia albuminoid .....	.142
Nitrogen as nitrates	8.10
Nitrogen as nitrites .....	.008
Chlorine	52.6
Alkalinity	273.
Incrusting constituents	91.
Total solids	789.
Bacteria per c c.....	*very few

*No intestinal bacteria present.

"The results show that while the appearance and the bacterial character of the water at the time of sampling were quite satisfactory, yet the remaining findings indicate the near proximity of great pollution of a serious nature, and further the water washing this pollution is already showing incomplete purification. The analysis is such that this water ought not to be made a public supply, because of quality."

As the plans of the present supply were never approved by the State Board of Health, as required by law, the question now is really upon approving the present supply. This will settle the question satisfactorily for the village, however, for if the present supply is condemned they will look for another location for the electric light and water plant.

The Board voted to disapprove their supply and the village clerk was notified of the action November 19, 1901, and also that at the earliest time possible they should discontinue the use of this water.

REPORT ON A PROPOSED WATER SUPPLY FOR CANAL FULTON.

Application was made by the Canal Fulton Water Works Company for the Board's approval of a water supply to be obtained from springs just outside the village limits. Mr. Josiah Hartzell, a member of the Board, was appointed a committee to make the necessary investigation. He reported as follows:

"The site of the four springs from which the Canal Fulton Water Works Company proposes to furnish water to Canal Fulton, a village of about 1,300 inhabitants, was visited on June 12, 1902. These springs come to the surface just outside the corporation limits, at a point 150 feet higher than the average level of the village streets. They arise at the bottom of a depression near the hill-top, near some farm buildings, and hitherto no effort has been made to protect the springs from surface influences. The proposition of the company says: 'These springs will be bricked from the rock up, and covered, and the water led into the reservoir through an 8-inch pipe. The reservoir will also be covered with a building and kept locked up.'"

The reservoir has a capacity of 150,000 gallons. Samples of the water were collected and returned to the laboratory of the State Board

of Health for examination. Mr. Horton, the chemist and bacteriologist, reported upon these as follows:

REPORT OF EXAMINATION OF WATER FROM CANAL FULTON.

(Parts per Million.)

Source of sample	Spring 1 mile from town.
Number of sample	2272
Color	5.
Turbidity	merest trace
Sediment	merest trace
Odor	none
Oxygen required .....	.15
N. as ammonia free .....	.005
N. as ammonia albuminoid .....	.019
Nitrogen as nitrates	3.90
Nitrogen as nitrites	none
Chlorine	1.8
Alkalinity	122.
Incrusting constituents	23.
Total solids	213.
Volatile and combustible	38.
Bacteria per c c	9800.
Colon bacilli present	yes
Iron	none

"Aside from the evidence of a little past pollution, which under the conditions is of minor importance, the chemical findings are very satisfactory. The water shows a good degree of purification, and is also a soft water. The bacterial findings are objectionable but are to be explained by the following circumstances in reference to the collection of the samples: While the three flowing springs are on an elevation, apparently near the summit, they are also near the bottom of a depression several hundred yards in circumference, 100 feet distant is a farm house, and 200 feet distant is the barn, both on higher ground than the springs, but the sharpest slope from these is in the other direction. Chickens and small house animals are all about, and more or less animal pollution might reach the water.

"The good chemical results show this is one of those cases occasionally met with in which there has been a bacterial pollution with the addition of very little other organic matter. With proper protection the bacterial quality of the water will doubtless be as satisfactory as the chemical findings, and the water would then be a very acceptable one indeed for a public supply as far as quality is concerned."

At a meeting of the Board, held June 27, 1902, it was voted to approve this supply, and notice of this action was sent to Mr. A. E. Townsend, general manager of the water company, June 30, 1902.

REPORT ON ADDITIONAL WATER SUPPLY FOR CANTON.

The city of Canton made application for the approval of an additional water supply to be obtained from drilled wells located on what is known as the Union Dam property. The matter was referred to Mr. Josiah Hartzell for investigation, who reported as follows:

"The water works of Canton, Ohio, are owned by the city and were first built in 1870. The first source of water was Myer's Lake, situated several miles from the center of the city. The lake water supply proved to be both unsatisfactory in quality and insufficient in quantity. Since the abandonment of the lake, most of the available sources of water have been experimented with. First the Nimishillen Creek was utilized. Owing to the impurity of the creek water and to the embarrassment arising out of law suits brought by mill owners, the city has wished to discontinue that supply for some time.

"The first effort in this direction took shape in a number of deep wells. These wells were sunk in the neighborhood of the power house about fifteen years ago and for some years furnished nearly all the water that was needed. When they became insufficient, resort was had to the creek.

"Owing to a very large increase in the population during the last six or seven years, it has been made apparent that new sources of water must be discovered and that the quality of the supply must be improved. An experimental well was sunk about a year ago at Navarre street, about a mile from the water station. A flowing well was found, the water from which, having been analyzed by the chemist of the State Board of Health, was found to be of a very superior quality.

"During the past winter, a number of additional wells have been sunk within a radius of two thousand feet of the Navarre street well. These last named have all proved to be flowing wells. The underground supply in this vicinity seems to be adequate to the present wants of the city.

"Before using the water from the Navarre street well above referred to, the State Board of Health adopted a report which, while making mention of the good character of the water, as indicated by the analysis, also advised that efforts be made to obtain a water supply at a greater distance from the city. In conformity with this advice the Canton water board had a number of wells sunk at a distance of two or three miles north of the city. The quality of the water found was good, but the supply was restricted in quantity. It was only after these investigations had been made that the wells south of the water station, and between said station and Navarre street, were sunk. While the territory upon which these wells are situated is not built upon for a considerable distance on any side, the settled part of the area commences

at no great distance from the site. It would indeed be more satisfactory if the water-gathering ground could have been developed at a considerable distance beyond the city limits, but the experiments so far made seem to be all that could be desired."

Specimens of the water taken from a central well of the group were submitted to analysis by the chemist of the State Board of Health with the following results:

REPORT OF EXAMINATION OF WATER FROM CANTON.

(Parts per Million.)

Date of examination, April 23, 1902.

Number of sample	2152
Color	12.
Turbidity	slight
Sediment	trace
Odor	none
Oxygen required	1.72
N. as ammonia free .....	.316
N. as ammonia albuminoid .....	.060
Nitrogen as nitrates	none
Nitrogen as nitrites	none
Chlorine	trace
Alkalinity	221.
Incrusting constituents	none
Total solids	267.
Volatile and combustible	52.
Bacteria per c c	9.
Colon bacilli present	no
Iron	3.5

"The sample was received from Mr. L. B. Oligher, superintendent of the water works, and was labeled "Well in Union Dam Property."

"The results show a deep ground water of good quality with the exception of its iron content. The presence of so much iron, while not detrimental to health, would give rise to complaints on the part of consumers unless the main supply is sufficiently free from iron to dilute the proposed additional supply to an unobjectionable condition. The water is otherwise so good as to suggest the advisability of removing the iron."

There seemed to be no reason why this water supply should not be approved by the State Board of Health, especially in view of the fact that the permanency of its character seemed to be well assured by a thick overlying stratum of impervious clay, and the committee recommended the approval of this deep well water supply for Canton.

The Board voted to approve this supply and notice was sent to the superintendent of the water works, Mr. L. B. Oligher, May 8, 1902.

PROPOSED CHANGE IN THE PUBLIC WATER SUPPLY OF COLUMBUS.

At a meeting of the State Board of Health held in Toledo, June 27, 1902, Mr. Frederick J. Immel, director of public improvements, Mr. Julian Griggs, city engineer, and other representatives of the city government, appeared before the Board and presented plans for a change in the public water supply for the city of Columbus. The following communication was handed in and read:

JUNE 27, 1902.

To the Honorable Board of Health, of the State of Ohio, Columbus, Ohio:

GENTLEMEN:—The city of Columbus herewith submits plans for a storage dam in the Scioto River of the gravity type, to be located about mid-way between the Jones and Fishinger dams, differing only from the plans heretofore approved by your honorable body, June 10, 1899, in being of somewhat heavier section, and having its rollway of the ogee form and the crest at an elevation of 30 feet above low water in the river; it being in its base the full size of a high gravity dam recommended by Samuel M. Gray, Consulting Engineer, with a spillway at the side, 52 feet above low water.

The city also requests that you carefully review condition "a" of your former approval pertaining to the stripping of the proposed reservoir with a view of requiring no greater burden of cost than may be necessary to adequately secure sanitary results conducive to public health commensurate with such expenditure.

Respectfully,

FREDERICK J. IMMEL,

Director of Public Improvements.

The Board voted to approve the plans as presented, subject to the following conditions:

1. That the ground to be flooded by water by the proposed dam shall be cleaned (a) by the removal of all trees and stumps and their branches and roots of one inch or more in diameter; (b) by the destruction of vegetation as far as possible by burning over the area; and (c) by the removal of at least one foot in thickness of the soil upon which houses, barns, hog-pens, or other sources of pollution are, or have recently been located.

2. That the water so stored shall not be used for a public water supply, unless purified in a manner satisfactory to the State Board of Health.

The director of public improvements of the city of Columbus was notified of this action June 30, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR COLUMBUS GROVE.

In July, 1901, the Board was requested to investigate certain sources of a proposed water supply for the village of Columbus Grove. An investigation was made but it was found that no definite steps had been taken by the local authorities to secure a new supply.

In November, 1901, upon request, a second examination was made and the location of certain wells from which it was expected to obtain a supply visited. An examination of the water furnished by these wells showed it to be of good quality and the supply was approved by the Board.

Subsequent to this the Board was notified that the people of Columbus Grove had voted to buy the light plant of that place, and they asked permission to locate their water plant at the same station, it being represented that water of the same quality as that heretofore examined could be found there.

A delegation from Columbus Grove appeared before the State Board of Health June 27, 1902, and presented plans and maps showing the proposed location of the well. Afterwards a sample of water from wells located at the new site was examined by the Board with the following results:

REPORT OF EXAMINATION OF WATER FROM COLUMBUS GROVE.

Parts Per Million.

Source of sample	Crawford well	Stone quarry	Well corner Elm and Eakin Sts. 1752
Number of sample	1750	1751	1752
Color .....	.08	.20	.10
Turbidity	mere trace	trace	slight
Sediment	very slight	trace	trace
Odor	trace	disagreeable	none
Oxygen required .....	.69	4.16	.14
N. as ammonia free ....	.256	.047	.186
N. as ammonia album'd.	.049	.256	.035
Nitrogen as nitrates....	none	trace	none
Nitrogen as nitrites....	.002	.004	.002
Chlorine	3.8	.3	1.8
Alkalinity	298.	118.	295.
Incrusting constituents..	1.	12.	16.
Total solids	435.	210.	427.
Volatile and combustible	134.	92.	108.
Bacteria per c c	12.	425.	16.
Colon bacilli present ...	no	no	no
Iron	1.1	.35	.7

"There is but little difference in the character of the well waters, the deep water, 1752, being a shade better. The well waters are some

harder than the quarry water, but contain less organic matter (the free ammonia of the former comes from reduction and is not indicative of sewage pollution). The well waters are potable, but not soft waters.

"The quarry water is fairly soft and contains some organic matter. The report of the engineer of the Board shows that the quarry is in a poor condition at present, but with cleaning and proper protection from subsequent pollution, it is possible the quarry water may attain a better standing as regards organic material so as to be suitable for a public supply. In its present state the quarry water is not up to the standard which the public supply should possess."

This supply was approved and under the date of July 18, 1902, notice was sent to Mr. George L. McKibben, as consulting engineer for Columbus Grove, that the Board had approved a public water supply for said city to be obtained from drilled wells located on inlot 276 of that village.

REPORT ON A PROPOSED WATER SUPPLY FOR FREEPORT.

The mayor of Freeport made application for the Board's approval of a water supply proposed for that village. Mr. Flynn, the engineer, was sent to Freeport, September 15, 1902, and in company with Mr. Boyd Kerr, a member of council, investigated the proposed supply and reported as follows:

"Bonds for \$4,000 are to be issued with which to construct the works complete, after the supply of water has been developed with funds furnished by a general levy.

"It is proposed to secure the water by means of wells located on a rather high hill north of the village. The site is free from practically all possible sources of pollution except that produced by a farm house and barn, the latter about 100 feet from the nearest well and lower down the hill. Eight acres have been secured on the hill for the location of the wells, reservoir, and wind-driven pumps with which it is proposed to pump the water. Two 6-inch wells, 212 and 228 feet deep respectively, have already been drilled, both of which struck the sandstone at a very few feet below the surface and after continuing in this rock to a depth of 150 feet found water which finally rose to within 130 feet of the surface. One of these wells was being pumped at the time of inspection by means of a single acting pump operated by the driller's rig. The cylinder was twenty-one feet from the bottom of the well and a twenty-foot suction below this made it possible for practically the entire supply to be pumped out. Under these conditions the well furnished thirty-three gallons in six minutes, then failed, a rest of ten

minutes allowed twenty-four more gallons to be pumped, and a further rest of six minutes enabled the pump to bring up twenty-three gallons in the four minutes before the well failed. As the well had been pumped dry a few times just previous to this test it is very probable that the above represents the quantity of water that can be expected from this well. The above figures make the daily capacity of the well some 3,800 gallons. It is very doubtful whether the above amount could be produced unless the well was pumped as continuously as possible, periodic pumping, such as would be furnished by a wind pump, would not develop as much per day. It was stated that the second well produced a little more than the one tested, although some stated to the contrary. From this it is very probable that both wells are about equally productive. There is nothing to indicate to the contrary as they are in the same formation and only eighty feet apart. On the above supposition the wells would together furnish something less than 8,000 gallons per day when circumstances were favorable. Owing to the closeness of the grain of the water-bearing strata, it would be worth while to shoot the wells and break up the rock with a view of increasing the supply.

"It is proposed to construct on the hill a 50,000 gallon reservoir to which the water will be pumped from the wells, then furnished to the village by gravity.

"As Freeport has a population of 700 it will be but a very short time before the average daily consumption will be in excess of the 8,000 gallons, and there is no doubt but that the summer consumption will be much in excess of it on account of the large use for sprinkling. Even if the supply is sufficient for ordinary uses, it must be noted that with a full reservoir two small fire streams will use up the entire reserve in two and a half hours, so that if a fire should break out in the time of maximum consumption when the reservoir is low there would be practically no protection to be secured from the water works.

"If more wells are drilled, as it seems certain there must be, it would hardly be economical to install a wind pump for each well when they are of as low capacity as are found here. It would no doubt have been much better to have placed the wells in the valley where a larger number could have been put down for the money, and where each well would draw from a larger area, than pump the water to the reservoir on the hill with a small power pump operated by a gasoline engine or even install a steam pump as coal is very cheap in this region. With the funds as low as they are in this village it would have been far wiser to have secured the services of a competent engineer so that the best plant for the money expended could be secured and none wasted in experimenting.

"The water produced by the well was very turbid at the time of

sampling, but this turbidity will disappear with continuous pumping and should not count strongly against the well."

The sample of water collected from well No. 1, by Mr. Flynn, was sent to the laboratory for examination. Mr. Horton, the chemist, reported upon the same as follows:

REPORT OF EXAMINATION OF WATER FROM FREEPORT.

(Parts per Million.)

	Well No. 1.
Source of supply	2522
Number of sample	15.
Color	500.
Turbidity	decided
Sediment	distinct oily
Odor	4.87
Oxygen required .....	.053
N. as ammonia free .....	.104
N. as ammonia albuminoid .....	.20
Nitrogen as nitrates .....	.090
Nitrogen as nitrates	4.2
Chlorine	155.
Alkalinity	none
Incrusting constituents	455.
Total solids	99.
Volatile and combustible	20.0
Iron	1500.
Bacteria per c c	no
Colon bacilli present	

"The sample is a very turbid one, but as indicated in the report of the engineer, the water may be expected to clear with use of the well. With this clearing there will come an improvement in several of the findings which as they stand are objectionable. The most serious feature of the analysis is the high findings for nitrites. There is some hesitancy in expressing a final opinion on this sample owing to the mixed conditions, and therefore a second sample should be secured after the well has been pumped longer. The water is soft and in that respect is desirable."

The mayor of Freeport was informed of the results of this examination and his attention was called to the fact that the quantity of water that the wells would be capable of yielding seemed to be entirely inadequate. It was suggested that this might be increased by shooting the wells; that if this were done we would make a second analysis and rely upon him to furnish figures showing whether the quantity had been increased by the proposed method.

Acting on this suggestion one of the wells was shot but on attempting to clean it out it continued to cave in and was temporarily abandoned. Another well was drilled to the depth of 289 feet and samples of the water from this well were sent in to the laboratory for examina-

tion with the statement that on repeated tests this well flowed at the rate of $7\frac{1}{2}$ gallons per minute, which would be something over 10,000 gallons per day, provided this flow was maintained. They propose to clean out the well that was shot, or drill a second well to the depth of well No. 2.

The chemist reported upon these samples as follows:

REPORT OF EXAMINATION OF WATER FROM FREEPORT.

(Parts per Million.)

	Well No. 2.	Well No. 2.
Source of sample.....	2606	2607
Number of sample	5.	5.
Color	60.	60.
Turbidity	slight	slight
Sediment	faint oily	faint oily
Odor	3.52	2.24
Oxygen required .....	.058	.059
N. as ammonia albuminoid .....	.240	.230
N. as ammonia free .....	.003	.003
Nitrogen as nitrites	none	none
Nitrogen as nitrates	1.2	1.2
Chlorine	300.	299.
Alkalinity	none	none
Incrusting constituents	416.	413.
Total solids	106.	101.
Loss on ignition	1.7	1.6
Iron	600.	550.
Bacteria per c c	no	no
Colon bacilli present		

"The analysis shows a usable water and one that will probably improve when the wells are finally connected up. The water contains some iron, but this is removable, and with this removal the appearance of the water will be improved. The analysis indicates the absence of material that will form scale in boilers, although some sludge will be found."

The water being of fairly good quality the question seems to be whether the wells will furnish a sufficient amount.

The Board voted to approve the supply, but the secretary was instructed to say that the Board doubted the wisdom of spending so much money to develop this supply without greater assurance as to the yield of the wells; and the Board advised that they should endeavor to find another supply which would be entirely satisfactory as regards both quality and quantity. A letter to this effect was sent to the mayor of Freeport December 23, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR KENYON COLLEGE, GAMBIER.

Application was made by the president of Kenyon College, Dr. Wm. Pierce, for the Board's approval of a public water supply for the college. Accordingly, Mr. Flynn, the engineer, was sent to Gambier on July 5, 1902, and investigated the proposed supply in company with Professor Ingham and Mr. Fagin. He also went over the ground later with Dr. Hyatt, a village trustee.

Mr. Flynn reported as follows:

"The trustees of Kenyon College propose to introduce a water supply for the use of the college proper and also for Harcourt Seminary, Bexley Hall, and the Academy, and for such citizens of the village as desire to use the same.

"Practically the entire works will be installed on college ground, but for mutual benefit it was stated that a franchise would be obtained from the village.

"It is proposed to obtain the water from a group of four wells drilled in the valley of the Kokosing River, near the crossing of the C., A. & C. Railroad. These wells are four inches in diameter and seventy-two feet deep, going through twelve feet of drift, forty feet of sandstone, twelve feet of shale, and the balance in sandstone. The water rises to within twelve feet of the surface and continuous pumping at the rate of 200,000 gallons per day lowered the level to twenty feet at which point it remained. The water in all the wells was lowered uniformly, showing an intimate connection between the supply of the several wells.

"There were about 300 people in the several colleges and about 500 in the village, making a total population of about 800.

"The well site is within the hamlet corporation at the foot of and south of the high ground on which the college is located. On the hill above the site and 200 yards away is located a small cemetery used by the college people only. It receives only a body or two a year, but has been in use since the first establishment of the college. The cemetery is on top of a rocky hill, the graves being excavated in rock, and about one-third of the area drains directly down the hill toward the well site. At one time a few horses were buried within fifty yards of the well but nothing but a few bones remains now, and no danger need be anticipated from this source.

"While it is not believed that the cemetery will affect the potableness of the water there are certain aesthetic reasons which make the location objectionable, and which will have considerable weight with some people.

"It is unfortunate that the present site was selected, as there are no doubt any number of locations where the same water could be developed without the objectionable features of the one selected."

A sample of the water was collected by Professor Ingham and sent to the laboratory for examination. Mr. Horton, the chemist, reported upon the same as follows:

REPORT OF EXAMINATION OF WATER FROM GAMBIER.

(Parts per Million.)

Source of sample	Second well from north.
Number of sample	2338
Color	trace
Turbidity	none
Sediment	none
Odor	none
Oxygen required .....	.40
N. as ammonia free .....	.118
N. as ammonia albuminoid .....	.038
Nitrogen as nitrates	trace
Nitrogen as nitrites .....	.002
Chlorine	1.0
Alkalinity	142.
Incrusting constituents	1.
Total solids	186.
Volatile and combustible	24.
Bacteria per c c	475.
Colon bacilli present	no

"If this is an old well the number of bacteria is a little higher than it might be, but in the absence of intestinal bacteria and chemical evidences of fresh pollution is of no moment. In a new well the number of bacteria is apt to be high from the machinery.

"The free ammonia appears to have come from reduction of nitrates and the small amount of nitrates may be from incomplete reduction. The nitrates have been reduced but could not have been high from animal pollution with so low a chlorine finding, consequently the analysis shows the absence of more than a slight past pollution. With fresh pollution the albuminoid ammonia and oxygen required would have been higher.

"As regards hardness this is a very acceptable water for a state in which hard water is so common. The water is soft and desirable for steam and laundry purposes.

"The analysis shows this water in its present quality to be a suitable one for a public supply."

The Board voted to approve this water supply for Kenyon College, and notice of this action was sent to the president of the college, Dr. Wm. Pierce, July 26, 1902.

REPORT ON FILTRATION OF WATER SUPPLY OF GENEVA.

In the annual report of the Board for 1901, the action of the Board in approving a public water supply for the village of Geneva, to be obtained from Grand River and to be filtered in a manner satisfactory to the State Board of Health is given.

The authorities of Geneva submitted plans for a mechanical filter of the gravity type with a settling tank for preliminary sedimentation of a duration of two hours, to be installed by the New York Continental Jewell Filtration Company. In the agreement entered into between the company and the village it is stated:

"Before acceptance of the plant the village of Geneva, Ohio, will have biological analysis of the effluent of the plant made by accepted authority. Said examination covering a period of two weeks operation.

"These analyses must demonstrate an average bacterial efficiency of not less than 95 per cent. when there are 3,000 or more bacteria per cubic centimeter in the unfiltered water, and shall show an average of not more than 150 bacteria per cubic centimeter in the filtered water when there are less than 3,000 bacteria per cubic centimeter in the unfiltered water. The contractor shall also furnish at his own expense a competent man to run the plant for a period of two weeks before final acceptance."

The following communication was received from the village engineer of Geneva, October 14th, 1902:

To the Ohio State Board of Health,

"Gentlemen:—Enclosed please find report of P. L. Hobbs on Geneva water supply. Also a copy of original contract and chemical analysis.

"We hereby submit this to your honorable board for its consideration and adoption.

"Yours respectfully,

"Village of Geneva.

"Per B. F. Hewit, Village Engineer."

The report of Mr. Hobbs was as follows:

"Cleveland, O., Oct. 13, 1902.

"Mr. B. F. Hewit, Village Engineer, Geneva, Ohio.

"Dear Sir:—I hereby submit the report on the water supply and filtered water which you are using:

"The reason that the first two tests show high in bacteria is not due to the filter but to the fact that the tests could not be completed the same day, or rather could not be started the same day, and standing until the next morning gave the bacteria time to increase; and in all the subsequent tests the water was packed in ice as soon as the samples were obtained, and held so until the tests were started.

"From the results obtained there is no doubt that the filter will attain and hold its 98 per cent. efficiency if properly handled; and I would suggest that the filter be not washed out as often as you have been doing but allow a thicker bed of the precipitate to form in the filter; and while the filter will not act as rapidly and your production will be cut down a little, still the results will be a little more satisfactory.

"The water that you are now turning out of your filter is far better than we are obtaining from the lake and is a safer water to use, and there is not the slightest danger in using from the source that you are if the efficiency of the filter is maintained.

"Yours very truly,

"P. L. HOBBS."

BACTERIOLOGICAL EXAMINATION.

	Temperature.	Colonies per cubic centimeter.	Fermentation test.	Efficiency.
Sept. 24th.				
Unfiltered	Incubator	300	negative	
Unfiltered	Room	600	negative	
Filtered	Incubator	70	negative	77%
Filtered	Room	200	negative	67%
Sept. 26th.				
Unfiltered	Incubator	1000	negative	
Unfiltered	Room	700	negative	
Filtered	Incubator	130	negative	87%
Filtered	Room	400	negative	43%
Sept. 29th.				
Unfiltered	Incubator	350	positive	
Unfiltered	Room	1200		
Filtered	Incubator	10	negative	97.2%
Filtered	Room	20		98.4%
Oct. 1st.				
Unfiltered	Incubator	300	positive	
Unfiltered	Room	1000		
Filtered	Incubator	10	positive	96.7%
Filtered	Room	180		82.0%
Oct. 3d.				
Unfiltered	Incubator	250	negative	
Unfiltered	Room	640		
Filtered	Incubator	10	negative	96.0%
Filtered	Room	50		92.2%
Oct. 6th.				
Unfiltered	Incubator	3200	positive	
Unfiltered	Room	9000		
Filtered	Incubator	10	negative	99.7%
Filtered	Room	60		99.3%
Oct. 8th.				
Unfiltered	Incubator	1120	positive	
Unfiltered	Room	4440		
Filtered	Incubator	30	negative	97.3%
Filtered	Room .....	...	

CHEMICAL EXAMINATION.

(Sample of Sept. 24 and Sample of Oct. 8. Results given in parts per million)

	Unfiltered.	Filtered.	Unfiltered.	Filtered.
Nitrates	trace	none	none	none
Nitrites	trace	none	none	none
Free ammonia .....	.075	.03	.007	.007
Albuminoid ammonia ....	.150	.065	.295	.065
Carbonic acid gas	74.8	61.6	30.8	4.4
Total solids	166.0	154.0	144.0	118.0
Iron and alumina	7.0	none	38.0	none
Lime	38.0	38.0	16.0	18.0
Magnesia	17.4	15.2	13.8	18.1
Chlorine	10.0	10.0	12.5	5.5
Sulfuric acid com'd	23.0	33.6	23.4	57.0
Color	turbid	clear	turbid	clear

These reports were considered by the Board at the meeting held October 15, 1902, and it was voted to approve of the water supply and the method of filtration for the village of Geneva in accordance with the plans presented to the Board.

The village engineer was notified of this action October 20, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR LANCASTER.

The water works trustees, through the health officer, Dr. Stukey, made application for the approval of the State Board of Health of a water supply proposed for the city of Lancaster.

Accordingly, the engineer, Mr. Flynn, was sent to Lancaster June 13th, and in company with the trustees and secretary of the water works board made an investigation of the proposed supply.

He reported as follows:

"The water available at the works now in use has been inadequate for some time and it is necessary to either increase the present supply or seek an entirely new supply from some other source. There has been a feeling among some of the people that it would be advisable to obtain a water removed from the pollution of the city to which the present supply is subjected. On the other hand some wish to increase the supply at the present station by going across the Hocking River and tapping the

gravel beds on the side removed from the center of population. This scheme would no doubt furnish a usable water at present, but it is not advisable as a permanent relief as the district which it is proposed to develop is now rapidly building up so that at the no distant future the ground water of this section will be as polluted as that underlying the main portion of the city.

"For the new supply the trustees have optioned a ten acre tract of land lying just west of the northern part of the city at which place a few test wells have been driven. This lot is at the junction of the river bottom land and the rolling uplands and is removed from all local pollution beyond an occasional farm house. Water was found in a bed of gravel lying about 17½ feet below the surface. The wells driven into this gravel seem to furnish a potable water, practically the same water which reaches the station below, but here developed before it has suffered from the pollution of the city.

"If this water proves acceptable as far as quality is concerned it is proposed to put in steam pumps and determine the quantity available.

"As this location is now removed some distance from the center of population of the city, and is above the drainage from the city it should furnish an acceptable water for the city supply."

A sample of the water was collected and returned to the laboratory for analysis. Mr. Horton, the chemist, reported upon this sample as follows:

REPORT OF EXAMINATION OF WATER FROM LANCASTER.

(Parts per Million.)

	Test well.
Source of sample	2269
Number of sample	13.
Color	21.
Turbidity	slight
Sediment	none
Odor .....	.52
Oxygen required .....	.054
N. as ammonia free .....	.025
N. as ammonia albuminoid	none
Nitrogen as nitrates	none
Nitrogen as nitrites	1.8
Chlorine	290.
Alkalinity	76.
Incrusting constituents	547.
Total solids	78.
Volatile and combustible	140.
Bacteria per c c	no
Colon bacilli present .....	.3
Iron	

"This water is removed from the influence of the barnyard and farm buildings, as indicated in the findings. With regard to organic purity the sample is very satisfactory. The alkalinity and the incrusting constituents show a harder water than is desirable for a public supply, though the water from this test well is only a little harder than the present supply of the city of Lancaster and is much better than the present supply from the standpoint of organic pollution. The water is usable."

The Board voted to approve this supply and the water works trustees were notified of such action June 25, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR LOUDONVILLE.

At the request of Mr. L. E. Chapin, consulting engineer, the engineer, Mr. Flynn, visited Loudonville, a village of 1,600 population, July 29, 1902, and in company with the mayor investigated the proposed water supply. He reported as follows:

"It is proposed to obtain the water from two wells sunk into the drift in the valley of Black Fork in the western part of the village. The wells are 10 inches in diameter and 58 and 56 feet deep respectively. They go through some 12 feet of soil, sand, and gravel, 12 feet of hardpan, and the balance in sand and gravel in which the water is found. The water rises very nearly to the surface and pumping well No. 2 at the rate of 200,000 gallons per day only lowered the water 12 feet. The wells are located just south of Main street between the Toledo and Walhonding Valley Railroad and Black Fork Creek, and they are removed from practically all local pollution. There is a canning factory about 200 yards below the wells and across the railroad which sends its waste to a ditch leading to the creek. This with two or three outhouses still further removed is the only opportunity for pollution. The water is to be pumped direct from the wells to a covered concrete reservoir of 270,000 gallons capacity."

A chemical and bacteriological sample was collected from well No. 2 and submitted to the chemist for analysis.

REPORT OF EXAMINATION OF WATER FROM LOUDONVILLE.

(Parts per Million.)

Number of sample	2373
Color	20.
Turbidity	clear then trace
Sediment	trace
Odor	faint earthy
Oxygen required .....	.89
N. as ammonia free .....	.162
N. as ammonia albuminoid .....	.025
Nitrogen as nitrates	none
Nitrogen as nitrites	trace
Chlorine	19.0
Alkalinity	253.
Incrusting constituents	118.
Total solids	386.
Volatile and combustible	64.
Bacteria per c c	250.
Colon bacilli present	no
Iron .....	.4

"The small amount of past pollution, of which there is indirect evidence in the analysis, has been well purified and as regards organic pollution the water is classed as a satisfactory one. The mineral findings show a moderately hard water and one that will cause some scale in boilers, but the sample indicates a usable water."

The Board voted to approve this water supply for Loudonville and notice of this action was sent to the consulting engineer, Mr. L. E. Chapin, August 15, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR MT. GILEAD

Application was made by the Mt. Gilead Electric Light, Heat and Power Company for the Board's approval of a public water supply for the village, to be obtained from drilled wells located in the center of the corporation.

Mr. Flynn, the engineer, was sent to Mt. Gilead, June 21, 1902, and investigated the proposed supply in company with Messrs Griffith and Cook, officials of the private company holding a franchise to supply the village with water and light. He reported as follows:

"The franchise was granted September 1900, and the plant was to have been completed by November 1901, but owing to financial troubles the company was partially dissolved and a new one formed of local citizens

who secured an extension of one year on the time for the completion of the plant, making it November 1902 now.

"The company owns the present electric light plant and a lot adjoining this plant, on which it is proposed to develop the public supply. These lots are on North street, between Rich and Iberia streets, practically in the center of the corporation, though west of the business section and in a poorly built up district devoted to manufacturing, etc.

"About one year ago a 15-inch tile lined well was sunk some 60 feet on the lot above mentioned and a good flow of water secured, but it was not developed, owing to the large amount of sand and gravel which came up when the well was pumped. Then, inside this well a 4-inch iron pipe was driven to a depth of 85 feet, in which condition the well stood for a year. The tile well went through 60 feet of gravelly clay and just entered the water-bearing gravel. The 4-inch well went through this vein of gravel and into another layer of clay. This year the well was drilled to 100 feet and the casing driven to 95 feet, entering a second vein of gravel from which it is proposed to secure the supply. The water from the first gravel rises within a short distance of the surface and that from the second gravel probably rises to the same point.

"The well was being pumped by an air lift which churned up the sand and gravel in the uncased portion of the well and forced out a water very turbid and full of sediment. With proper casing and with steady pumping for a short time, this well will no doubt clear up and furnish a water comparatively free from turbidity and sediment.

"The local pollution is not as serious as would be expected from the central location of the well site, owing to the few houses close at hand. There is one house on the lot adjoining on the west, but it is proposed to make use of this for the engineer's residence, and any objectionable features could be abated. The next nearest houses are from 200 to 300 feet away, the property immediately adjoining being used for industrial purposes, lumber yards, railroad yards, etc. The location is lower than the business section though not in direct line of drainage from it, but is in line of drainage from a portion of the residence district. No portion of the village is closely built up, the houses having large yards, with numerous open places between, so that the 1,800 people are scattered over a large area. The drainage from the entire western portion of the village is cut off by a run which lies just west of the proposed site.

"While there is opportunity for the pollution of the ground water it is very doubtful if this pollution will influence the water in the second gravel, or even in the first, protected as it is by the thick stratum of clay. The only chance for such pollution is by the puncturing of the

clay layer by deep vaults or by the running out of this layer at some distant point, leaving the gravel stratum less fully protected. The deep vaults do not exist and the pollution from some distant source can only be detected by an analysis of the water.

"The shutting off of the water from the first gravel would give less chance for pollution, and if this location is made use of it is advisable that this be done. The site should also be protected by suitable drains to divert all surface water.

"There seems to be sufficient water available for the supply of the village, although this phase of the question has not been investigated as yet."

A chemical and bacteriological sample of the water was collected and returned to the laboratory. Mr. Horton, the chemist, reported upon the same as follows:

REPORT OF EXAMINATION OF WATER FROM MT. GILEAD.

(Parts per Million.)

Source of sample	Well at electric light plant.
Number of sample	2307
Color	12.
Turbidity	329.
Sediment	considerable
Odor	none
Oxygen required	5.85
N. as ammonia free .....	.342
N. as ammonia albuminoid .....	.034
Nitrogen as nitrites	none
Nitrogen as nitrates	none
Chlorine	2.4
Alkalinity	298.
Incrusting constituents	234.
Total solids	1355.
Volatile and combustible	176.
Bacteria per c c	6000.
Colon bacilli present	no
Iron (unfiltered)	12.

"For a proposed supply the sample is a very unsatisfactory one to pass an opinion upon, since we cannot foretell to what extent subsequent pumping will improve some of the analytical findings. At present the sample is very objectionable in appearance. It comes, however, from a new well, and we would expect it to clear sooner or later as in other cases. This clearing up would also, in addition to yielding a slightly water, decrease the total solids, the oxygen required, and the iron, all of which are too high for a good water. By that time the number of bac-

teria would probably be much lower, for it is reasonable to infer they come largely from the new well rather than from the water itself under the circumstances. The bacterial sample was not sent in ice.

"The analysis does not indicate the water has at any time had any serious pollution from organic matter, such as sewage.

"The water of the sample is very hard, being high both in alkalinity and incrusting constituents. (For comparison, it is considerably harder than the Columbus tap water.) The water as shown would be very unsatisfactory for steam purposes or for use with soap.

"The findings do not indicate this water would be immediately, and perhaps not remotely, injurious to health, and therefore it could be classed as usable, but it is very undesirable for a public supply in its present state. It will likely remain very hard, but the objectionable features of turbidity, sediment, oxygen required, bacteria and iron, will probably be more or less reduced. A sample after the well clears would be desirable."

The Board voted to approve this public water supply, and notice of this action was sent to Mr. Mark Cook, President of the Mt. Gilead Electric Light, Heat and Power Company, July 8, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR NEW BREMEN.

The village of New Bremen made application, through its health officer, Dr. M. S. Ekermeier, for the approval of the State Board of Health of a water supply for that place. Mr. Flynn, the engineer, was sent to New Bremen on November 1, 1902, to make the necessary investigation. Mr. Flynn reported as follows:

"It is proposed to obtain a supply for New Bremen from a number of wells to be drilled on village property located in the southwestern part of the corporation, at the foot of Herman street. The lot contains about three acres and was a part of a tract purchased for manufacturing sites. It is removed from local pollution and seems to be an acceptable place in which to prospect for water.

"One 8-inch well has been drilled 102 feet deep going through 59 feet of clay, 15 feet of dirty gravel, 26 feet of limestone, and 2 feet of clay. The water is obtained from the lower part of the rock and it rises, when not pumping, to within $9\frac{1}{2}$ feet of the surface. Pumping the well with

an air lift, at the rate of from 100 to 250 gallons per minute, lowered the level to 30 feet.

"The water has a slight taste of iron but not enough to be objectionable and this small amount can easily be removed.

"Owing to the good flow obtained from the first well it is believed that two more will be sufficient."

A sample was collected for chemical and bacteriological examination and submitted to Mr. Horton, the chemist, who reported upon them as follows:

REPORT OF EXAMINATION OF WATER FROM NEW BREMEN.

(Parts per Million.)

Source of sample	Waterworks well.
Number of sample	2592
Color	18.
Turbidity	24.
Sediment	slight
Odor	faint oily
Oxygen required	1.66
N. as ammonia albuminoid .....	.061
N. as ammonia free .....	.420
Nitrogen as nitrites	trace
Nitrogen as nitrates	none
Chlorine	1.5
Alkalinity	256.
Incrusting constituents	158.
Total solids	689.
Loss on ignition	122.
Iron	2.4
Bacteria per c.c.	18.
Colon bacilli present	no

"The analysis shows a deep water of good quality as regards organic pollution, and in that respect is very desirable for a public supply. On the other hand, it contains, like many of our deep waters, considerable inorganic matter. The amount of iron present would lead to some complaint, but is a removable objection, and besides may be expected to decrease somewhat when the water clears up with use of the well. The faint odor is not pleasant but fortunately is not very strong if it does not increase in intensity. The water is hard, being about like the present supply of Columbus in that respect.

"The analysis shows a desirable water as regards organic purity, and an undesirable but usable one with its present inorganic content. The sample therefore would be classed as a usable water.

"It might be said in addition that the water of this sample is an improvement over some of the deep well waters of the northwestern part of the state."

This supply was approved by the Board, and notice of the action was sent to the health officer, Dr. M. S. Ekermeier, November 17, 1902.

REPORT ON PROPOSED WATER SUPPLY FOR NEWCOMERSTOWN.

Application having been made by the superintendent of water works of Newcomerstown to approve a new source of water supply for that village, the engineer, Mr. Flynn, was sent there, February 10, 1902 and submitted the following report:

"It is proposed to supply the village with water to be obtained from twelve 6-inch wells driven in the upper part of the corporation and on the north bank of the Tuscarawas River.

"The ultimate capacity is to be 2,000,000 gallons, though 500,000 gallons per day will be an extreme maximum not to be reached for a number of years. Six of the wells are in, all ranging from 35 to 37 feet deep, going through 8 feet of clay loam and 26 to 28 feet of fine sand, striking the water bearing gravel immediately below this. The wells are to be completely cased and pumped by direct suction to an open distributing reservoir to be located on a hill back from the river.

"There is no local pollution and the purity of the supply can be easily maintained by the prevention of the encroachment of houses or by the complete sewerage of any houses which may be put up near the site of the wells. The water company owns only two acres of land at this point and it would be an excellent thing if a few more could be obtained, but the high price of land is not favorable to such investment.

"The wells already in have been tested, separately, at the rates of from 150,000 to 200,000 gallons per day each, with but little lowering of the water level from the normal of 18 feet below the surface. The supply seems ample for all the purposes for which use will be found here.

"A chemical and a bacteriological sample from one well, after it had been pumped for half an hour at the rate of 80,000 gallons per day was taken. This short pumping did not completely clear the well but it is believed a fair sample was obtained.

"Considering everything these wells, if properly protected, ought to furnish an excellent water supply for many years."

These samples were examined by the chemist who reported as follows:

REPORT OF EXAMINATION OF WATER FROM NEWCOMERSTOWN.

(Parts per Million.)

Source of sample	Driven well.
Number of sample	2088
Color	5.
Turbidity	0.
Sediment	trace
Odor	none
Oxygen required .....	.46
N. as ammonia free .....	.014
N. as ammonia albuminoid .....	.039
Nitrogen as nitrates	trace
Nitrogen as nitrites	none
Chlorine	33.1
Alkalinity	150.
Incrusting constituents	56.
Total solids	327.
Volatile and combustible	89.
Bacteria per c c	*18.
Iron .....	.6

*A suspicious organism present.

"The results show a comparatively soft water and one containing very little organic material. The one undesirable finding is in the character of the bacteria. In view of the other favorable findings together with the favorable surroundings, it is desirable to know from a second sample whether suspicious bacteria are normally present in this otherwise good water.

"A second sample, 2116, was obtained at our request by Mr. Edwin R. Davis, and was received on the 11th of March. Examination gave the following results: Chlorine 34.8 parts per million; nitrogen as nitrates .50; nitrogen as nitrites .003; bacteria per c c 650. Colon bacilli were present but they were so sparingly present as not to be found in part of the tests made. The higher number of bacteria in the present sample may be due to an insufficient pumping of the well. The presence of colon bacilli in this water is unexpected in view of the surroundings and the otherwise favorable analytical findings, and it would seem that the other results should take preference in deciding as to whether the water is suitable for public supply."

The Board voted to approve this supply and notice of the action was sent to the superintendent of the water works, Mr. Edwin R. Davis, March 26, 1902.

REPORT ON THE WATER SUPPLY AND SEWERAGE OF
NEW MATAMORAS.

It was reported that the village of New Matamoras had put in a new water supply and sewerage system, neither of which had been approved by the State Board of Health. The attention of the authorities was called to the matter and they pleaded ignorance of the law requiring such approval.

The engineer, Mr. Flynn, was sent to New Matamoras, July 24, 1902, to inspect these works and reported as follows:

"The public water supply is obtained direct from the Ohio River at a point opposite the upper end of the village. This point is four miles below Sistersville, 15 miles below New Martinsville, 39 miles below Moundsville, and 45 below the group including Bellaire, Martins Ferry, Bridgeport, Wheeling and Benwood. The population of these cities is respectively 2,979, 1,089, 5,362 and 65,024 for the group. Many of the people living in these towns have access to the sewers and all of them send more or less filth to the river.

"The works were completed in October of 1901 at a cost of \$10,000 and comprise a small frame pumping station, a pump well, a 6-inch intake pipe, gas engine, 300,000 gallon power pump, 2 miles of 6 and 4-inch mains, and an open brick reservoir of 75,000 gallons capacity. There are 60 services in use, none of which are metered. The water is not in general use for domestic purposes direct, though many use it for the purpose of filling their cisterns. Water is to be supplied free until September 1, 1902, when rates will be established.

"A complete system of sanitary sewers has been put in at a cost of \$3,000. This system includes 1.6 miles of 6, 8, 10 and 12-inch tile sewer with the necessary flush tanks, manholes, etc., and a 24-inch cast iron outlet to the Ohio River opposite the lower end of the village.

"Practically the whole village has access to the sewers though only 12 connections have been made as yet as the system was only completed during the present month."

This matter was brought before the Board at its meeting held October 15, 1902, and it was voted to approve the sewers, but the Board could not approve of the use of the Ohio River water for domestic purposes without purification.

As the water works had been completed the Board voted not to disapprove them, but to urge that a proper filtration plant be added at the earliest time possible. Notice of this action was sent to the mayor and council, October 20, 1902.

CHANGE OF THE INTAKE OF THE WATER SUPPLY OF NEW RICHMOND.

The water works trustees of New Richmond requested the Board to approve a change in the intake for their water works. The plans show that they propose to move their present intake which is in the Ohio River about 300 feet down stream. The object of this removal was to avoid a sand-bar which had formed near the present intake.

At a meeting of the Board held June 27, 1902, these plans were presented and the Board voted to approve them. Notice of the approval was sent to the board of water works trustees, June 30, 1902.

REPORT ON PROPOSED WATER SUPPLY FOR NEW VIENNA

Application was made by the mayor, Mr. S. C. Sisson, for the approval of the State Board of Health of a water supply proposed for the village of New Vienna.

Accordingly the engineer, Mr. Flynn, was sent to New Vienna, June 27, 1902, and in company with the mayor investigated the proposed supply. He reported as follows:

"It is proposed to obtain the supply from a number of wells to be located in the valley of a small run in the southeastern part of the village. This water was first developed by a deep well drilled for gas in 1887. The well was drilled some 1,700 feet deep and plugged, when abandoned, at 200 feet from the surface. Above this point the well goes through 60 feet of drift, 40 feet of limestone, 40 feet of shale and limestone, 20 feet of shale and gravel, 10 feet of shale and limestone, and 30 feet of limestone. It is supposed that the water comes from the porous limestones and gravelly shales found below the drift. When not being pumped the water rises to the surface and flows a small stream.

"The well is entirely removed from pollution of any kind, it is above the village and on the farther side of the run from the same. Its waters have been made use of for a number of years by the neighboring residents and recently it has been pumped accordingly to supply the street sprinkling cart.

"The water from this well was analyzed and favorably reported upon in June 1899.

"The general plans for the development of this supply have not been completed as yet and no further information concerning them can be

given except that there will be a number of wells drilled in this location to help out the one already down."

Samples for chemical and bacteriological examination were collected and returned to the laboratory for examination. Mr. Horton, the chemist, reported upon these as follows:

REPORT OF EXAMINATION OF WATER FROM NEW VIENNA.

(Parts per Million.)

Number of sample	523	2320
Color .....	.1	18
Turbidity	none	less than .06 or below 25 silica std.
Sediment	very slight	trace
Odor	none	slight
Oxygen required	2.21	1.73
N. as ammonia free .....	.780	1.040
N. as ammonia albuminoid .....	.070	.082
Nitrogen as nitrates	trace	none
Nitrogen as nitrites	none	none
Chlorine	8.1	6.1
Hardness temporary	212.	213.
Hardness permanent	none	none
Total solids	252.	269.
Volatile and combustible	92.	83.
Iron.....		.75
Bacteria per c c		115.
Colon bacilli present		no

"The results are somewhat different than usually found in a good water, but are quite similar to those found in four previous waters from the same village as follows:

"No. 522-3. Two artesian wells samples in June 1899.

"631. A school well sampled in August 1899.

"1,669. A school well sampled in May 1901.

"The results for No. 523 are given for comparison. In passing upon the above four samples they were with a little reluctance reported upon favorably; at the same time a request was made that we be informed whether the waters proved on use to be wholly acceptable. If these waters have been shown by experience to be satisfactory for domestic use, then the analysis indicates the present water would be acceptable for a public supply. The water as shown by the sample is a comparatively soft one. I would class the water as usable, but whether wholly satisfactory can best be told by the experience with the waters from the four sources above quoted."

The Board voted to approve this supply, and notice of this action was sent to the mayor, Mr. S. C. Sisson, July 18, 1902.

REPORT ON THE PROPOSED WATER SUPPLY FOR OAKWOOD.

The Oakwood Water and Light Company made application for the Board's approval of a water supply from Oakwood, a suburb of Dayton. Mr. Flynn, the engineer, visited Oakwood, December 4, 1901, and in company with Mr. R. T. Houk, of the water company made an investigation, and reported as follows:

"Oakwood is an unincorporated community, situated just south of the city of Dayton, and has an estimated population of 250. As the majority of the houses are of the better class a water supply has long been desired and the present scheme has been under way for a number of years, but failed of being carried out owing to lack of funds. It is impossible to obtain a supply from Dayton, without a second pumping, as the elevation of Oakwood is too great for the pressure furnished at the city station.

"In 1899 certain of the residents of the community incorporated the Oakwood Water and Light Company, secured a franchise from the county commissioners, and sunk a well, securing, apparently, an abundant supply of water.

"The well which it is proposed to use now is located 20 feet south of the Dayton corporation line and 198 feet west of Brown street on a 30x60 foot lot owned by the company. It is also 110 feet west of a well put down by the State for use of the State Hospital, but never connected up. The well is 6 inches in diameter, 55 feet deep, and goes through some 10 feet of soil and the balance in sand and gravel, which is probably seamed with strata of clay. At 46 feet there was struck a vein of water of such strength that the well flowed at an elevation of 10 feet above the surface.

"The well is removed from all serious local pollution, the nearest house being over 300 feet away, and with but few in the vicinity. As it is intended to supply only from thirty-five to forty families, or say 10,000 gallons per day, the well will no doubt furnish sufficient water."

A sample for chemical and bacteriological examination was collected, but owing to the length of time the well has been in place it was impossible to remove the cap and it was necessary to cut a hole in the casing. The water was forced through this at a high velocity, carrying much fine sand with it, some of which appears in the sample. The chemist examined this with the following results:

REPORT OF EXAMINATION OF WATER FROM OAKWOOD.

(Parts per Million.)

Source of sample	Deep well.
Number of sample	2005
Color .....	.10
Turbidity	slight
Sediment	slight
Odor	none
Oxygen required	1.08
N. as ammonia free .....	.380
N. as ammonia albuminoid .....	.140
Nitrogen as nitrates	none
Nitrogen as nitrites	none
Chlorine	7.7
Alkalinity	310.
Incrusting constituents	17.
Total solids	482.
Volatile and combustible	153.
Bacteria per c c	13.
Colon bacilli present	no
Iron	3.5

"The amount of iron is higher than is desirable but the method of collection may have unduly increased this finding. The results indicate a potable water for a deep well."

This supply was approved by the Board and the Oakwood Water and Light Company was so notified, December 16, 1901.

REPORT ON A PROPOSED WATER SUPPLY FOR PAULDING.

The water works trustees, through their consulting engineer, Mr. J. P. Force, made application for the approval of a water supply to be obtained from drilled wells in the northwestern part of the village. Accordingly, the engineer of the Board, was sent to Paulding, May 9th, and with the assistance of Mr. Force and the water works trustees investigated the proposed supply. He reported as follows:

"It is proposed to supply Paulding with water to be obtained from wells drilled into the limestone found about 28 feet below the surface. Three wells have been located in the northwestern part of the village at the corner of Walnut and Caroline streets. These are all 8-inch wells, and they are 320, 345, and 616 feet deep, and are known as No. 1, No. 2 and No. 9. No. 2 is located 100 feet north of No. 1, and No. 9 is about 300 feet west of No. 2. The rock is here overlaid with a solid bed of clay, effectually shutting off all surface water.

"The first strong flow of water was struck at about 100 feet and a second vein at 200 feet, with the water rising to within 16 to 18 feet of the surface.

"No. 2 and No. 1 were being tested with air lifts at the time of inspection. No. 1 gave about 40 gallons per minute with the water lowered to 49 feet from the surface and with the water in No. 2 standing at 18 feet from the surface. No. 2 gave about 135 gallons per minute with the water lowered to 47 feet from the surface, and with the level of No. 1 reduced to 24 feet.

"It was estimated by the air compressor representative that both wells would give about 250 gallons per minute with the air lifts properly installed, and the figure seems very reasonable. Such an amount would be ample for all ordinary use for some years to come, the only question being on a sufficient quantity for fire protection.

"The site is quite free from local pollution and the water is excellently protected with its clay covering from such pollution as may accidentally occur. A sewer has been brought to the site which will carry off all drainage from the plant itself.

"After one hour's pumping a chemical and a bacteriological sample was taken from well No. 2 and sent to the chemist, Mr. Horton, for analysis. The water was still slightly turbid and tasted somewhat of iron, but it should prove a quite acceptable water, much better than that obtained from the private wells.

"Continued pumping for a few days will no doubt remove the small amount of turbidity remaining."

REPORT OF EXAMINATION OF WATER FROM PAULDING.

(Parts per Million.)

	Drilled Well No. 2.
Source of sample	2184
Number of sample	20.
Color	111.
Turbidity	decided
Sediment	faint oily
Odor	2.02
Oxygen required .....	.566
N. as ammonia free .....	.080
N. as ammonia albuminoid	none
Nitrogen as nitrates	none
Nitrogen as nitrites	19.5
Chlorine	238.
Alkalinity	14.
Incrusting constituents	374.
Volatile and combustible	1520.
Total solids	1000.
Bacteria per c c	no
Colon bacilli present	2.5
Iron	

"The results indicate the absence of organic pollution, but the presence of a considerable amount of inorganic matter. The water is rather high in alkalinity but not in incrusting material, and is therefore moderately hard but not so bad for steam uses as if the hardness included more sulphates and chlorides of lime and magnesia. The total solids and iron are high and it is to be hoped the water will improve on pumping, as indicated in the report of the engineer. With the present physical properties and mineral characters the water could be used as regards the health of the consumer, but the analysis indicates the undesirable condition of the water. It is possible the water will improve to such an extent as to allow it to be classed as usable."

This supply was approved by the Board and notice of this action was sent to the consulting engineer, Mr. J. P. Force, May 23, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR SEBRING.

The village of Sebring, in Mahoning county, made application for the approval of a public water supply, to be obtained from the Mahoning River. Mr. Josiah Hartzell was appointed a committee to investigate and report. He reported as follows:

"It is proposed to take the water from the Mahoning River at a point about two miles distant; to pump the same into a standpipe to be built on the top of a ridge at a point about equi-distant from the town and the river, the two sections being, each, about a mile in length.

"About two miles below the proposed intake the water supply of Alliance is taken from the Mahoning, the same being filtered through sand and gravel. Local authorities at Alliance inform me that at its lowest stage the Mahoning was able to furnish no water in excess of the amount required in that city. I brought this fact to the attention of the Sebring authorities and suggested the advisability of an investigation with a view to settling priority of claim to the water, and other questions that might cause future embarrassment. Although only two years old Sebring already numbers 2,500 people, is growing rapidly, and is certain to become a large consumer of water in the near future.

"The sources of the Mahoning water are springs from ten to fifteen miles above Sebring. There are no towns on its course, nor sources of pollution aside from the drainage of a large territory all under cultivation."

Samples of water at the point of the proposed intake have been analyzed by the chemist, Mr. E. G. Horton with the following results:

REPORT OF EXAMINATION OF WATER FROM SEBRING.

(Parts per Million.)

Source of sample	Mahoning River.
Number of sample	2129
Color	25.
Turbidity	33.
	(silica standard)
Sediment	slight
Odor	earthy & vegetative
Oxygen required	4.98
N. as ammonia free .....	.084
N. as ammonia albuminoid .....	.276
Nitrogen as nitrates .....	.80
Nitrogen as nitrites	none
Chlorine	1.4
Alkalinity	49.
Incrusting constituents	59.
Total solids	195.
Lost by ignition	59.
Suspended solids	25.
Bacteria per c c	26,000.
Colon bacilli present	yes
Iron	1.0

"The findings indicate a stream of water receiving a little sewage influence (presumably by surface drainage) and quite a little vegetative organic matter. The water is quite soft for this state yet contains some scale forming material as boiler use would show. The analysis indicates that this water would not be an acceptable one in its raw state. While it is hardly a usable water in its present condition, the analysis indicates it could be made with treatment a desirable supply.

"If it is determined to use this water its proper filtration is vitally essential."

The committee therefore recommended that the water proposed for Sebring should be approved, only after the same has been brought into such condition, by satisfactory filtration as to merit and receive the approval of the State Board of Health.

The Board voted to disapprove this supply, unless the water should be purified by filtration in a manner satisfactory to said Board, and notice of this action was sent to the Sebring Water Company, April 30, 1902.

Subsequently the superintendent of the water company of Sebring, Mr. H. F. McFarland, reported that they were obliged to change the source of their water supply and asked the State Board of Health to approve the supply from the Mahoning River.

Mr. Josiah Hartzell, a member of the Board, was appointed a committee to make the necessary investigation. Mr. Hartzell visited Sebring on November 26, 1902, and made the following report:

"The water company of Sebring is now an independent corporation, and is entirely separated from the Sebring Land Company which first undertook the introduction of a water system, getting its water from deep wells. The new water company tested existing wells, and drilled new ones, but with negative results as to quantity.

"Finally it was thought best to take the water from the Mahoning River, and an option for the requisite territory at a point two and one-half miles south of Sebring.

"A force main will convey the water from the pumping plant to a stand-pipe located on an eminence of fifty feet, situated about half way between the pumps and the city.

"The upper Mahoning is fed by springs, and the dry weather flow is claimed to be quite constant and reliable. There are no towns, or other polluting influences above, other than the ordinary drainage from fields and farms. The fall is rapid, the channel has generally a rocky bottom, and the stream is one of the rather ideal character.

"To the suggestion that Alliance, taking its water from the Mahoning four miles below, might sometime raise the question of priority of right, the company's superintendent gave the assurance that that contingency had been well considered, and the conclusion reached was that there could never fail to be an abundance of water for both cities."

Several samples of the water were sent to the laboratory of the Board for analysis. Mr. Horton, the chemist, reported upon these as follows:

REPORT OF EXAMINATION OF WATER FROM SEBRING.

(Parts per Million.)

	Mahoning River.
Source of sample	2633
Number of sample	35.
Color	very slight
Turbidity	very slight
Sediment	none
Odor	3.77
Oxygen required .....	.184
N. as ammonia albuminoid .....	.038
N. as ammonia free	trace
Nitrogen as nitrates .....	.010
Nitrogen as nitrites	1.9
Chlorine	173.
Alkalinity	43.
Incrusting constituents	339.
Total solids	89.
Loss on ignition .....	.7
Iron	3500.
Bacteria per c c	yes in 40 c c
Colon bacilli present	

"This sample is a great improvement over either of the samples received in January and March of the current year, especially in the bacterial findings. Intestinal bacteria were not found in portions of 1 cc, but were when 40 cc was the amount employed. The presence of colon bacilli in small numbers is not so significant in an open stream because of the opportunity of animal pollution through surface washings.

"The amount of vegetative organic matter is also less in this sample, although not wanting. The analysis indicates relative freedom from sewage pollution.

"The hardness will vary with the stage of the river due to rains, but the present sample is moderately soft. The sample contains about 60 per cent. the total solids that the deep well water from Sebring in December 1899 had.

"The analysis indicates a stream water that is usable."

Mr. Hartzell, the committee, recommended the approval of this water supply.

The Board voted to approve this last proposed supply, and notice was sent to the superintendent of the water works company, December 23, 1902.

REPORT ON PROPOSED ADDITIONAL WATER SUPPLY FOR SHREVE.

The water works trustees of Shreve, made application for approval of the State Board of Health of an additional water supply for that village. The engineer, Mr. Flynn, was sent to Shreve, June 3rd, and in company with the secretary of the water works trustees, Mr. L. Isenberg, investigated the proposed supply. He reported as follows:

"For the past few years the one well in use has barely been able to furnish a sufficient quantity of water and the subject of an additional supply has been agitated a number of times.

"Following the advice of the local authorities it was decided to attempt to increase the supply by drilling the original well deeper. This was done the latter part of May, the well being drilled some 34 feet deeper and some increase in the supply obtained. For twelve days while the well was being deepened, the village was temporarily supplied with water from a private well on the corner of Market and McConkey streets. This well is 4 inches in diameter and was drilled some 186 feet deep. It was put down in 1885 and was used more or less extensively until a few years

ago, when it was capped and abandoned. It is cased almost its full length and might be able to furnish a potable water, but owing to its unfavorable location much complaint was made against even its temporary use and considering all things its use as a permanent supply is not advisable. As an emergency supply for fire protection its use would probably not be objectionable, but it would be far better to develop a sufficient supply from some other source so that there would be no necessity of falling back on this well.

"It is also proposed to develop the Sheard Spring, located in the northeastern part of the village. This spring flows a very fine stream of water which is no doubt potable as there seems to be no opportunity for pollution of any kind. From the brief inspection it would seem that there could be developed here a supply sufficient for the needs of the village for some time to come and it would certainly be advisable to investigate this source with the view of making use of it for an additional supply."

Chemical and bacteriological samples were collected and sent to the laboratory for examination from the Market street well and from the Sheard Spring.

The chemist, Mr. Horton, reported as follows:

REPORT OF EXAMINATION OF WATER FROM SHREVE.

(Parts per Million.)

Source of sample	Sheard Spring	Market St. well.
Number of sample	2241	2242
Color	5.	10.
Turbidity	none	slight
Sediment	none	slight
Odor	none	none
Oxygen required .....	.10	.82
N. as ammonia free .....	.014	.280
N. as ammonia albuminoid .....	.034	.026
Nitrogen as nitrites	none	none
Nitrogen as nitrates	2.60	none
Chlorine	3.6	31.9
Alkalinity	174.	256.
Incrusting constituents	41.	none
Total solids	276.	394.
Volatile and combustible	51.	56.
Bacteria per c c	140.	2500.
Colon bacilla present	no	no
Iron .....	.1	.7

"The water of the Sheard Spring is only moderately hard and from the analysis it is seen to be relatively free from organic matter. If this spring is remote in distance from polluting sources its water may be ex-

pected to maintain its quality and would be acceptable as an additional supply for public use.

"The free ammonia in the Market street well is not objectionable in its indication as it has come from reduction of nitrates. The water has been in contact with polluting substances although now purified, and is usable so long as the purification is maintained. It is richer in mineral properties than the preceding sample and therefore less to be desired for a public supply. It would be classed as a usable water as far as its present quality is concerned."

The Board voted to approve this additional water supply, and notice of this action was sent to the clerk of the water works trustees, Mr. L. Isenberg, June 14, 1902.

REPORT ON A PROPOSED WATER SUPPLY FOR WESTERVILLE.

The water works board, through their consulting engineer, Mr. J. P. Force, made application for the approval of the State Board of Health of a water supply proposed for the village of Westerville. The engineer, Mr. Flynn, visited the village June 4, 1902, and in company with Mr. Force investigated the proposed supply. He reported as follows:

"A test well has been drilled on Tract No. 2, in the northern part of the village, which location was formally approved by the Board. The well is 8 inches in diameter and 147 feet deep, but it is intended to deepen it to 175 feet so as to provide proper submergence for the air lifts with which it is proposed to pump the wells. The well goes through some 56 feet of soil and clay, then through 16 feet of gravel and sand in which the water is found. Shale is found below the gravel. The well is to be cased both above and below the gravel, with a strainer opposite this stratum for the collection of the water. The water rose to within 31 feet of the surface and it was lowered to 66 feet when pumping at the rate of 95,000 gallons per day. It is proposed to put down four wells of the above character so as to insure an ample supply.

"As was previously reported, the wells are removed from local pollution and should furnish an excellent water after they have been pumped for a proper length of time to free them from the turbidity incidental to a new well."

Samples were collected for chemical and bacteriological examination and returned to the laboratory. Mr. Horton, the chemist, reported upon these samples as follows:

REPORT OF EXAMINATION OF WATER FROM WESTERVILLE.

(Parts per Million.)

	Well No. 1.
Source of sample	2251
Number of sample	20.
Color	131.
Turbidity	considerable
Sediment	faint oily
Odor	4.24
Oxygen required .....	.706
N. as ammonia free .....	.047
N. as ammonia albuminoid	none
Nitrogen as nitrates	trace
Nitrogen as nitrites	4.4
Chlorine	318.
Alkalinity	32.
Incrusting constituents	764.
Total solids	83.
Volatile and combustible	1200.
Bacteria per c c	no
Colon bacilli present	2.0
Iron	

"The physical properties of the water are undesirable for a public supply, but it is claimed these will improve on pumping. The number of bacteria is also high for a new well but may be due to bacterial infection from the machinery, and would then decrease subsequently. The amount of iron is higher than it should be, but is of less moment if it is removed by the air lift and subsequent sedimentation as is claimed will be done. The amount of carbonaceous organic matter as indicated by the oxygen required is high and desirably should be lower. The high free ammonia is not so objectionable in a deep water where it comes from reduction of nitrates as in a surface water where it might have another meaning.

"The water is said to be soft water, lathering freely, but the analysis indicates the water is very hard, and an actual test with a portion of the sample required a large amount of soap and gave a heavy curd before the formation of a lather. The sample was much harder than is desirable in a public supply from an economical standpoint, although we can not say it would be detrimental to health.

"It will be seen that the water as represented by this sample has a number of objections of more or less weight, but it is possible that all of these except the hardness may be removed in the proposed supply, in which case the water would be a usable one. So hard a water is very undesirable in a public supply, and would give rise to complaint on the part of the consumer. Without the removal of the undesirable features the analysis could hardly class the water as usable."

The Board voted to approve the proposed water supply for Westerville, and in the letter of approval sent to the consulting engineer, Mr. Force, June 24, 1902, attention was called to the chemist's report upon the sample from the test well No. 1, which showed that while the water might be satisfactory from a sanitary standpoint it was hard, and that might prove objectionable. As they were limited to a ground water supply and it was probable that any water obtained from that source in the neighborhood would be of equal hardness, that objection was not allowed to stand in the way of the Board approving the supply. It was stated that probably a large part of the iron, the turbidity and sediment would be removed as the supply came into use and also that the faint oily odor noticed would disappear.

REPORT ON ADDITIONAL WATER SUPPLY FOR WEST MILTON.

At the meeting of the Board held October 15th, 1902, the question of the approval of a water supply for West Milton was considered.

The secretary presented the following report of the engineer, Mr. Flynn, who visited West Milton October 4, 1902, and in company with the village clerk, Mr. John Coat, investigated the proposed supply:

"It is proposed to obtain the supply from one of the numerous springs in this section which outcrop from the limestone bedrock and flow down to the Stillwater River. These springs are frequently used to produce power for small mills and seem to have a very steady and reliable flow.

"The particular one in question which it is proposed to use is known as the Vore Spring and is located on the Vore farm one-half mile southwest of the village. The spring bubbles up from the limestone through a few feet of drift overlying the stone. It is located in the middle of a large field and is removed from all possible sources of pollution. The water is to be carried to the pumping station, in the valley east of the spring, through a 6-inch vitrified pipe with cemented joints. The surplus flow of the spring is to be conducted through its natural channel to the same station and there used to produce the power to pump the spring water.

"From all that could be learned it would seem that this spring should furnish an acceptable public water supply for West Milton.

"From its location on the farm it would be well to have the spring carefully fenced in and protected from all surface drainage by means

of a ditch entirely surrounding the immediate site and properly drained to the run below the spring."

A chemical and bacteriological sample was collected and returned to the laboratory for analysis.

Mr. Horton, the chemist, reported upon these as follows:

REPORT OF EXAMINATION OF WATER FROM WEST MILTON.

(Parts per Million.)

Source of sample	Vore Spring.
Number of sample	2554
Color	26.
Turbidity	trace
Sediment	very slight
Odor	faint vegetative
Oxygen required	5.30
N. as ammonia free .....	.042
N. as ammonia albuminoid .....	.184
Nitrogen as nitrates	1.80
Nitrogen as nitrites	none
Chlorine	trace
Alkalinity	189.
Incrusting constituents	none
Total solids	244.
Volatile and combustible	111.
Bacteria per c c	2300.
Colon bacilli present	yes
Iron .....	.5

"The sample is reported to have been collected at the time of a hard rain, and that it doubtless contained some surface washings. The analysis indicates that such was the case, as will be seen by referring to the findings for bacteria, oxygen required and albuminoid ammonia. With cows in the field and opportunity for intestinal bacteria to be washed into this water at the time of sampling as is reported, the presence of colon bacilli is understood. The other determinations named would naturally increase with the surface washings.

"The analysis, under the circumstances, should not condemn this water but rather should be taken as an indicator that under the proper protective measures this spring would furnish satisfactory water for a public supply as far as quality is concerned.

"This water is relatively a soft water and a good water for steam uses."

The Board voted to approve the proposed supply, to be obtained from the Vore Spring, and notice of this action was sent to the mayor

and council October 20, 1902, with a copy of the chemist's report upon a sample of the water.

REPORT ON PROPOSED WATER SUPPLY FOR WILMINGTON.

The Wilmington Water, Light and Ice Company made application, through their secretary, for the Board's approval of a water supply proposed for that village. Mr. Flynn, the engineer, was sent to Wilmington on November 26, 1902, and in company with Messrs. Poindexter and Martin, made the necessary investigation.

Mr. Flynn reported as follows:

"It is proposed to secure a supply of water from a number of wells to be drilled in the northeast corner of the village at the intersection of Columbus street and the Cincinnati and Muskingum Valley Railroad. Two wells have already been drilled and it is believed that two more, or four in all, will be sufficient.

"Well No. 1 is 8 inches in diameter and 200 feet deep going through 48 feet of soil and clay, 13 feet of gravel, in which the water is found, 49 feet of clay and shale, and the balance in the rock.

"Well No. 2 is 8 inches in diameter and 76 feet deep, going through 8 feet of clay, 6 feet of gravel and sand, and the balance in clay and shale.

In well No. 1 the water stands at 6 feet from the surface and it was lowered 26 feet by pumping at the rate of 40,000 gallons per day. In No. 2 the water stands only one foot from the surface while pumping at the rate of 70,000 gallons per day only lowered the water 3 feet.

"The wells are located on a $2\frac{1}{2}$ acre lot drained by a small branch flowing to the south. There is no source of pollution above the wells and nothing near them on any side except a dump on Columbus street, just west of the water company's property. This dump was made to raise the level of the street and is composed of refuse and trash of all kinds, though but little garbage was noticed.

"Owing to the failure of the steam pump to arrive the wells could be pumped but little. A sample was collected for chemical and bacteriological examination from well No. 1 after a short pumping with a hand pump."

This sample was sent to the laboratory and Mr. Horton, the chemist, reported upon it as follows:

REPORT OF EXAMINATION OF WATER FROM WILMINGTON.

(Parts Per Million.)

	Well No. 1.	Well
Source of sample	2634	2648
Number of sample	25.	22.
Color	81.	trace
Turbidity	slight	trace
Sediment	faint earthy	faint peculiar
Odor	3.29	8.31
Oxygen required .....	.126	.286
N. as ammonia albuminoid .....	.122	.098
N. as ammonia free	none	2.50
N. as nitrates .....	.600	.012
N. as nitrites	7.8	12.2
Chlorine	323.	270.
Alkalinity	none	
Incrusting constituents	369.	452.
Total solids	104.	
Loss on ignition	3.0	.25
Iron	1800.	
Bacteria per c c	no	
Colon bacilli present		

"The second sample was collected by Mr. Martin and was a sedimented sample.

"As some of the findings serve as indicators of the organic matter were not satisfactory in the first sample, the second one was asked for because the first was three days in transit and was taken after only a limited pumping. The results indicate that the samples contain some surface water and some from a deeper source, the mixture leading to the presence of the nitrites shown. With the surface water excluded, the wells ought to yield a suitable water as regards quality, although the present samples show more vegetative organic matter than would be desirable. The iron is a removable feature and leaves an acceptable water as regards appearance. The water is only moderately hard and in the first sample shows an absence of scale forming material, which is desirable for boiler uses.

"While the present samples are not wholly desirable, yet it is probable that when the wells have been properly connected up, the unfavorable features will disappear and leave a potable water."

The Board voted to approve this supply upon the condition that all surface water be effectually excluded from the wells and notice was sent to the secretary of the water company, December 9, 1902. Mr. Martin, the secretary, called at the office of the Board and stated that they expected to run cement around the pipes so as to cut off all surface water, which would doubtless improve the quality.

SEWERAGE SYSTEMS AND SEWAGE DISPOSAL.

REPORT ON A PROPOSED OUTFALL SEWER FOR ADA.

At a meeting of the Board held October 15, 1902, the secretary presented plans for an outfall sewer for the village of Ada as prepared by Mr. A. R. Taylor, county surveyor, of Kenton, which had been submitted for approval, and the following report of the engineer, Mr. Flynn, who visited Ada August 11, 1902, and investigated the proposed sewer in company with the mayor:

"Ada has at present three lines of outfall sewers leading to ditches tributary to the Ottawa River or Hog Creek, which is a little more than a mile north of the village. These outfall sewers with a number of branches for each are composed of uncemented bell and socket sewer tile and are to carry off storm water, cellar drainage, kitchen waste, and wash water. Two of the outfall ditches receive so much dirty water that they cause a nuisance for the greater part of the year. One of these receives the flow from the 24-inch sewer on Main street at a point just north of the corporation line. This ditch following a circuitous route, finally reaches the Ottawa River. On account of the nuisance caused by the filthy waste water standing in this ditch much complaint was made and to remedy this the present extension was proposed. This extension consists of 7,585 feet of one line of 24-inch tile for a portion of the way and of two lines for the balance, with the outlet direct into the above named river.

"As Ada is at present installing a public water supply, this would very soon mean the sending of raw sewage direct to the Ottawa River at a point only fifteen miles above where the water is used for the public supply of Lima. Further the uncemented sewers at present in the streets of Ada are not a proper receptacle for the sewage which would inevitably be sent to them even if the outlet were so far removed as to cause no trouble to the senders. These uncemented sewers would in the dry weather saturate the subsoil with filth and be a serious menace to the private wells along the line. Still further, the Ottawa River does not have sufficient flow at the proposed outlet to care for the sewage of even a small portion of the village without causing a nuisance, and thus giving ground for the complaint of the residents along the stream.

"It would cause less trouble now and be much cheaper in the end to employ a competent engineer to prepare plans for a complete system

of sanitary sewers with purification works, and put in as much, according to this plan, as the funds would allow.

"Then the present combined sewers could be used acceptably for storm water drains. In conclusion, it is my opinion that the present extension of the Main street sewer is inadvisable on account of the possibility of pollution of the new water supply for Lima, the pollution of the subsoil and private wells along the line of the tributaries to this sewer, and finally because the proposed extension will in no way remedy the present cause of complaint but merely transfer it to a new set of residents who will undoubtedly renew the agitation."

The Board voted to disapprove this outfall sewer with the outlet direct into the Ottawa River, or Hog Creek, and Mr. Taylor was so notified October 20, 1902.

REPORT ON PROPOSED SEWERAGE FOR DISTRICT NO. 14, CINCINNATI.

The board of public service of the city of Cincinnati made application for approval of plans for sewerage for that part of District No. 14, including the territory bounded by Linwood, Observatory and Delta avenues, and for a trunk sewer in Linwood avenue and Crawfish Creek. The matter was referred to Dr. Byron Stanton, member of the Board, who reported as follows:

"The object of the application is to secure the necessary authority for the construction of the proposed sewers before the improvement of the streets included in the plat is undertaken. It is the expectation of the board of public service to improve these streets in the coming summer with asphalt and the construction of the sewers before the street improvements are made will greatly reduce the cost and secure better work.

"As the sewers will discharge into the trunk sewer in Crawfish Creek, which discharges into the Ohio River above the intake of the water works, I would recommend the approval of the plans on condition that the sewers shall be used for storm water only and no house connections be permitted until the consent of the State Board of Health has been obtained."

The Board voted to approve the plans for these proposed sewers upon the condition that no connections for house drainage, water closets or vaults should be permitted without the consent of the State Board of Health, and that such approval should not take effect until the State Board of Health received a written agreement from the board of public

service that no permit would be granted for house connections contrary to said conditions.

Notice of this action was sent to the clerk of the board of public service March 5, 1902. April 10, 1902, a certified copy of the following resolution which had been adopted by the board of public service was received:

"The board of public service hereby agree with the State Board of Health, that no permit shall be granted for house connections with any sewer in the plan for sewerage in part of Division No. 14, including sewer in Linwood avenue and Crawfish Creek and territory bounded by Linwood avenue, Observatory avenue and Delta avenue, without the express consent of the State Board of Health."

REPORT ON PROPOSED SEWERAGE FOR DIVISION NO. 16, CINCINNATI.

Application was received from the chief engineer of the board of public service of the city of Cincinnati for approval of plans for additional sewerage for that city, to wit:

(a) That part of Division No. 16, city of Cincinnati, east of Gilbert avenue and north of Hewitt avenue, and

(b) For Bloody or Ross Run sewer from the end of the present sewer, about 370 feet north of Hopkins avenue, to Mill Creek.

The question was referred to Dr. Byron Stanton, a member of the Board, for investigation, who reported as follows:

"This application of the board of public service is for the approval of proposed branch sewers for storm and sanitary purposes to connect with and discharge into an existing stone sewer that runs through the Jewish cemetery, also for the approval of a three and one-half-foot brick sewer, about 400 feet long, in Calvary cemetery to connect two portions of the stone sewer. This sewer discharges into Duck Creek.

"The construction of the brick sewer to connect the two portions of the stone sewer will do away with a nuisance created by an open ditch carrying sewage, and may therefore be commended. Whether the extension of the branch sewers through streets now being built upon, an extension that will increase the amount of sewage discharged into Duck Creek can be commended, is doubtful, unless provision be made for the purification of the sewage.

"Coincident with the receipt of this application came a complaint to the Board, from an anonymous source, of a nuisance along Duck Creek road created by the discharge of sewage into Duck Creek by the village

of Evanston, and complaints have for several years been made to our Board by residents along that stream, of nuisances caused by the sewage of Evanston and Norwood. The construction of the sewers planned for Division No. 16 will in time increase the nuisance. Your committee would therefore recommend that the plans be approved only on the condition that the city of Cincinnati will agree to purify the sewage in a manner satisfactory to the State Board of Health whenever deemed necessary by said Board."

The Board voted to approve plans for Division No. 16, upon the following conditions: (a) Sewers for that part of Division No. 16 east of Gilbert avenue and north of Hewitt avenue provided that the city of Cincinnati would agree to purify the sewage in a manner satisfactory to the State Board of Health whenever deemed necessary by said Board, and (b) Sewers for Bloody or Ross Run sewer as submitted.

Notice of this action was sent to the chief engineer of the board of public service, Mr. H. J. Stanley, June 30, 1902.

REPORT ON PROPOSED SEWERAGE FOR DISTRICTS NO. 6 AND NO. 7, DAYTON.

The city civil engineer of Dayton, Mr. F. M. Turner, presented plans for sanitary sewers in Sewer District No. 7, and a part of No. 6, of that city. The secretary visited Dayton March 21, 1902, and in company with the city engineer and two members of the Board of City Affairs examined the territory to be sewered and reported to the Board as follows:

"The present population of the territory now proposed to be sewered is about 18,000. The main sewers are calculated for a population of 45,000. The outlets proposed are marked "A" and "B" on plans. Outlet "A" is for a population of about 3,000, and empties into the Miami River near the present sewer outlet, and the territory sewered is very low and will require pumping during high water.

"The outlet marked "B" is for high territory and will flow by gravity at all times and empties into the Miami River about one mile below the city. The sewerage from the low district cannot be run into the sewers of the high district without constant pumping. The present plans comprise about twenty-five miles of sewers, from eight to thirty inches in diameter.

"With the proposed plan sewage will have to be pumped only during high water in the river. This is also required for the sanitary sewers already constructed, and is unavoidable.

"The river was at minimum stage when examined. There was no evidence of pollution from the sewage it is now receiving. The additional sewage to be added to the river will not, in my judgment, cause a nuisance. There are no public water supplies, taken from the river, to be affected. Should it become necessary for Dayton to purify its sewage, as it may in the future, it is feasible to bring all the sewage to one point from which it would have to be pumped to the disposal grounds."

The Board voted to approve these proposed plans for sewer districts No. 6 and 7, of the city of Dayton, it being understood that, in accordance with a resolution adopted by the Board of City Affairs April 2, 1902, "the proposed sanitary sewers are not to be used for cellar drainage."

Notice of this action was sent to the Board of City Affairs, April 3, 1902.

REPORT ON PROPOSED SEWERAGE FOR DESHLER.

At a meeting of the Board held June 37, 1902, Messrs. Riggs and Sherman, consulting engineers of Toledo, presented plans for the sewerage of Deshler, accompanied by the following report:

"The village of Deshler is situated on the C., H. & D. R. R., in the southeast corner of Henry county. It has approximately a population of 2,000.

"Included within the corporation is about three square miles, about one square mile of which is platted.

"A small creek known as Brush Creek runs through the village from west to east near the southern part of the plat. A branch of this running to the southwest together with the county ditches and the section lines between Sections 13 and 24 to the north of the town, a county ditch on the north corporation line, a county ditch on the west corporation line, afford the only outlet for all the water. These county ditches are nearly dry at present and will remain entirely dry during the summer. Brush Creek is a stream of water about four feet in width and one foot in depth at present, and during the two or three months of summer is practically a dry stream.

"All the territory around Deshler may be called a dead level and the county ditches have less than one inch per 1,000 feet fall.

"Brush Creek has a fall of five feet to the mile and is the only stream which has a perceptible current.

"The highest land in town is less than ten feet above the bottom of Brush Creek at the east corporation line. These conditions make the

problem of sewerage a very serious one for the people of this community.

"There are few cellars at present in the town. There is not a furnace in the town, nor have any of the residences anything in the way of sanitary sewerage.

"There are at present two lines of pipe which are called sewers, one running in Main street, from Brush Creek northwest to Park street, an 18-inch pipe sewer with catch basins at all street intersections, This sewer apparently carries some kitchen drainage or drainage from a laundry. There is at the outlet no evidence of any solid sewage passing through it, but the discoloration of the pool of water at the outlet indicates that there is a small amount of what may be termed sanitary sewage reaching this drain. There is a sewer running in the alley north of Main street, one block, then in the alley west of the C., H. & D. R. R., running south to the county ditch on the section line road. At present it discharges into the ditch just east of the C., H. & D. R. R. This sewer carries as nearly as we can ascertain, drainage from one or two cellars, a barber shop and the Hotel Fayram which has one closet and a urinal.

"The bulk of the vacant property in Deshler and all the better improvements are owned by Florian Giauque, who has urged upon the council the importance of building what has been put in at present with a view to the possible extension of the sewers over the entire plat. Going therefore under the instructions of the council we have designed a system of sanitary sewers to cover the whole present corporation.

"To build a system of gravity sewers is manifestly an impossibility. We therefore decided upon a sanitary system, either the Shone System using compressed air with three lift stations or some other form of pumping, making three stations, the first station being at the outlet caring for all the territory in the corporation east of the C., H. & D. R. R. Second: At the crossing of Maple and Clark streets, caring for all the territory west of the C., H. & D. R. R., and north of the B. & O. R. R. Third: On Park street, south of the B. & O. R. R., caring for all the territory west of the C., H. & D. R. R., and south of the B. & O. R. R.

"The main sewer would run on Plum street, from Brush creek to Oak street, thence on Oak south to Maple, thence west on Maple to Park. This sewer together with the laterals on Elm between the C., H. & D. R. R. and Oak street, and the laterals on East Main street, in the alley south of Main street, and the alley north of Main street, and a section on Park street, from Main to Maple street, will serve the town nicely at it is built at present.

"Over two hundred acres included in the plat have no houses so that by far the greater portion of the sewers will not be built for years, if ever. The sanitary sewers are designed to provide for cellar drainage

immediately, there being at present but little sanitary sewage to go into the system, the greater need being for drainage for cellars and foundations. We have no doubt that if the town develops as its citizens anticipate, there will be in time a considerable amount of sanitary sewage, and sewage disposal will be necessary. At present, however, the only sanitary sewage to be provided for, all of which will be intercepted by the proposed sewer, is a small amount going into the Main street sewer and the somewhat larger but still small amount which now goes into the Hotel Fayram sewer.

"To build a system of sewage disposal at present would be utterly beyond the means of the people of Deshler as they will have to spend considerable money in sewerage and will also soon have to build water works. We therefore ask your approval of the outlet into Brush Creek at the east end of Plum street, subject to the conditions that when, in the opinion of the Board sufficient sanitary sewage is discharged at this point to create a nuisance, sewage disposal works will be installed.

"The flat ground makes the disposition of the storm water a problem of annoying proportions. The grades are level and the roads almost impassable in the spring of the year. It is proposed to provide more adequate storm water drainage as follows:

"First: By using the present storm water outlet into Brush Creek on Main street. Second: By completing a storm water outlet into Brush Creek on East street, extending this sewer to the corner of Park street and Maple street, thus relieving the territory in what is now the residence section of the village. Third: At some time in the future to take care of the storm water south of the B. & O. R. R. by a future outlet at Marion and South streets, and to provide for storm water in the northeast part of the town by the storm water outlet on Elm street.

"These sewers to be connected with catch basins only, no connection whatever to be permitted with private property. We would therefore ask your approval on the five outlets for storm water sewers.

"The northwestern section of the town north of Main and west of Park must of necessity be provided for by means of the open ditches as it is impossible to secure a sewer of sufficient grade to take the storm water away from this territory. Inasmuch as there are no improvements of any nature in the territory named we do not consider it a problem for the present."

The Board voted to approve the proposed plans for a system of sanitary sewers for the village of Deshler, upon the condition that sewage purification works should be installed whenever in the opinion of the State Board of Health this might become necessary.

REPORT ON SEWERAGE AND SEWAGE PURIFICATION
FOR GALION.

The authorities of Galion, through their consulting engineer, Mr. J. P. Force, made application for the Board's approval of plans for a system of sewers and sewage purification works.

Following is a summary of the report presented by the consulting engineer:

"Galion is situated in Crawford county, Ohio, on the Olentangy River (or locally Whetstone Creek), is a city with a population of, according to the federal census of 1900, 7,282 inhabitants.

"I consider it amply sufficient in selecting a site for sewage purification works to provide sufficient room for expansion for double the present population.

"At present there are sewers in use for the removal of sewage amounting to 14,913 lineal feet, or 2.82 miles.

"The total number of connections made for the purpose of house drainage is 250.

"Of these sewers 2,674 lineal feet, or slightly over one half mile discharge sewage into Pickle Run, the remainder into Whetstone Creek direct.

"In regard to the unsanitary condition of Pickle Run, with which no doubt every citizen of Galion is familiar, I will quote from a report made in 1895, by Dr. C. O. Probst, secretary of the State Board of Health, after an investigation undertaken by him upon the request of the Galion board of health.

"Pickle Run is a small stream flowing through a thickly settled part of the city, and empties into Whetstone Creek within the city limits. It is more or less polluted along its entire course with drainage from water closets and privy vaults. It has been estimated that the closet drainage of 800 people or more enters this run.

The result has been the creation of a very bad nuisance affecting the comfort and property interests, and seriously menacing the health of a large number of people. That this nuisance should be abated every one acknowledges.'

"Later in the report quoted, Dr. Probst recommends that a sewer be constructed to remove the sewage now discharged into Pickle Run and to connect with the main sewer for the whole city as: 'It is essential that one outlet for the whole system be found, as it is more than probable that in the near future the city will be compelled to purify its sewage before turning it into Whetstone Creek. This stream is too small to carry off the sewage emptied into it even now without creating a nuisance.'

"Dr. Probst further states, that if no steps are taken to provide sewerage as recommended it will become the duty of the local board of health to prevent the pollution of Pickle Run by enforcing Sections 2116 and 6921 of the Revised Statutes of Ohio.

"It seems quite plain that the present pollution of Pickle Run and Whetstone Creek is a serious menace to the healthfulness of your city, and taking the location and character of your water supply into consideration, may yet prove the source of a serious epidemic if not abated.

"The city is at present divided into fifteen separate main sewer districts. The plan which is now proposed is to provide each and every district with an outlet into a main trunk or intercepting sewer which will convey the sewage of the city far beyond its boundaries where it will be disposed of in a safe, economical and efficient manner.

"In the year 1897, the State Board of Health in pursuing an investigation of the sources of water supplies in Ohio, caused gagings of the amount and analyses of the quality of the water in the creek at Galion to be made.

OLENTANGY RIVER.

Drainage area equals 20 square miles. Cubic feet per second per square mile of basin.

1897.

August 10.....	131,000 gallons per day = .0135
August 31.....	124,000 gallons per day = .0128
September 18.....	11,000 gallons per day = .0011
October 4.....	47,000 gallons per day = .0048
October 30.....	29,000 gallons per day = .0030

"At the last three gagings the entire flow was sewage only, as the stream was entirely dry above the mouth of the sewer, which was about 150 yards above the gaging station.

"I have assumed that a purification of your sewage to the extent of not less than 85 per cent. is all that is necessary, and have accordingly arranged a plan consisting of septic tanks and coke contact beds which will produce this result in the most economical manner both for cost of construction and operation.

"The general plan submitted is arranged for double your population. The part of the general plan recommended for immediate construction in connection with the main sewer is capable of purifying 400,000 gallons of sewage daily or 100 gallons of sewage per capita daily from 4,000 persons.

"Before deciding to recommend these works I investigated the local conditions and material and was unable to discover any material that could be used for the filters without large expense."

These plans were approved by the State Board of Health, and notice was sent to the consulting engineer, Mr. Force, March 29, 1902.

REPORT ON SEWERAGE AND SEWAGE PURIFICATION FOR GENEVA.

At a meeting of the State Board of Health held January 15, 1902, Mr. H. E. Riggs, of the firm of Riggs and Sherman, consulting engineers of Toledo, presented an outline of plans proposed for a system of sewers, with sewage purification, for the village of Geneva. He stated that completed plans had not yet been made, but they asked that the Board should approve essential features of the plans, to wit: A separate system of sewers with sewage disposal works in the northeastern part of the village to consist of septic tanks supplemented by intermittent filtration.

The Board voted to endorse this general plan as suitable for the village of Geneva, with the understanding that no construction of sewers was to take place until full and detailed plans had been presented to and approved by the board. The engineers were so notified January 20, 1902.

Following this the engineers presented completed plans and specifications for a system of sanitary sewers and sewage disposal works. The following abstracted from a statement made by the consulting engineers to the mayor and council of Geneva, will sufficiently describe the work:

"The plans as completed are practically the same as those submitted with our preliminary report of February 3, 1902.

"You will note the following changes: The main sewer along the creek from Broadway to Cemetery street is omitted; the sub-main sewer from Eagle street is carried through Depot street and Railroad street instead of on private right-of-way north of the L. S. & M. S. R. R. North Broadway and Water street; artificially prepared single contact beds of sand are substituted for the intermittent filtration area owing to the nature of the soil as shown by the samples submitted by your village engineer.

"We recommend the collection of all sanitary sewage into a receiving reservoir so designed that the septic action will take place before its entrance into the pumping reservoir. A grit chamber is provided, from

which the sludge can be pumped occasionally on to the sludge bed. From the pumping reservoir the sewage is forced to the contact beds 500 feet distant through a 6-inch cast iron main. The total reservoir capacity is about 12,000 cubic feet, or 90,000 gallons, one-half of which is in the pumping reservoir. The capacity of the septic tanks is 36,000 gallons. Based on sixty gallons per capita, this affords for about six and a half hours flow. Further septic action may be had in the pumping reservoir if found desirable.

"The contact beds, six in number, are each forty feet wide by eighty feet long. They will be drained by parallel lines of three-inch soft drain tile spaced twenty feet apart and laid four feet under the surface. The beds are to be made of clean, coarse lake sand or sharp bank gravel. The sewage will be conducted from the distributing well to alternate beds, each bed answering for a single pumping. It will be necessary to use each bed once in thirty-six hours.

"We would recommend the purchase of half an acre of land on the west side of Cowles Creek as a site for the reservoirs and pumping plant, and five acres on the east side of the creek for contact beds."

These plans were approved and notice of this action was sent to the consulting engineer March 27, 1902.

REPORT ON PROPOSED SEWAGE DISPOSAL FOR THE GLENWOOD CHILDREN'S HOME.

Application was made for the Board's approval of plans for the purification of the sewage from the Glenwood Children's Home. Mr. Flynn, the engineer, visited the home November 25, 1901, and in company with Messrs. Newton and Jenkins, trustee and superintendent respectively, made an investigation. He reported as follows:

"The home is located in the extreme southwestern corner of Youngstown, on the high land bordering Mill Creek. It contains some twenty children, cared for by five attendants. The buildings were erected and the home established in the fall of 1900, at which time a sewage disposal system was installed. The water supply is from the Youngstown water works.

"The sewage disposal works consisted of a brick cistern 10x14 by 10 feet deep, partitioned off by dry brick walls, into three compartments. The first of these it seems, was filled with coke, and the second with broken stone; the third being empty and serving as a manhole. The effluent was to go to a branch of Mill Creek. The sewage in passing through this system was compelled to go through the coke and stone

and through two dry brick walls. As was to be expected, the filter soon clogged up and the sewage rose to the surface, flowing out of the man-holes. To avoid this, holes were knocked through the brick walls and the sewage allowed to flow away without any purification, as the filtering material was rendered so impervious that the sewage merely ran over the surface.

"During the summer of 1901 the sewage caused so much nuisance that plans were prepared for a new system of disposal, with the advice of Mr. E. G. Bradbury. These plans contemplate tearing out the contents of the old filter tank and using a portion of same for a collecting and flushing basin to discharge the sewage onto two intermittent sand filters.

"The basin is designed to hold 1,000 gallons, a day's flow of sewage, nearly, and it is to discharge the sewage by opening a gate operated by hand.

"The two filters are located west of the institution, at a much lower level, and each 20 feet square. They are constructed of 6-inch concrete walls backed with clay, with 3-inch concrete bottoms, and are designed to have 6 inches of broken stone, 6 inches of gravel, and 42 inches of sand, or $4\frac{1}{2}$ feet in all of filtering material. Each bed will have one 3-inch soft tile underdrain leading to a 6-inch tile outfall sewer, which discharges to a dry run leading to Mill Creek about one-fourth mile away. The sewage is to be distributed over the beds by a movable sheet iron pipe, leading from the end of the cistern outfall sewer, at the center of the south side of the beds. To prevent the washing of the sand a slab of stone 3x3 feet will be placed on the bed at the end of the discharge pipe. On account of the high grade of the above sewer, it may be necessary to use more elaborate methods to protect the beds from the rush of sewage.

"The beds have a combined area of nearly one-fiftieth of an acre and should be ample to care for the average flow of the sewage which amounts to about 900 gallons per day.

"The effluent will go to Mill Creek at a point about $1\frac{1}{2}$ miles above Youngstown water works on the Mahoning River. If Mill Creek is developed for the water supply of Youngstown the effluent will pass almost directly into one of the reservoirs.

"For this reason it will be found necessary to maintain the plant in good condition so that it may work with high efficiency. If the sand which is to be used for the beds is not suitable for the rate of filtration required, it may be necessary to make an addition to the filter area, especially when the sewage increases in amount and Mill Creek is used for a water supply.

"It is estimated that the sand filters and the alterations in the basin will cost about \$500."

The Board voted to approve these plans subject to the conditions that the approval would be withdrawn if the Board should consider it necessary in the future for the protection of the water supply of Youngstown, or that such changes and improvements in the method of purification should be made as the Board might require to that end.

The trustees of the home were notified of this action December 16, 1901.

REPORT ON PROPOSED SEWAGE DISPOSAL FOR THE LUCAS COUNTY INFIRMARY.

At the meeting of the Board held January 15, 1902, Mr. H. E. Riggs, of the firm of Riggs and Sherman, consulting engineers of Toledo, presented plans for sewage disposal for the Lucas County Infirmary with the following statement:

"This institution is located within the city limits of the city of Toledo about four miles southwest of the business center of the city.

"The institution has at present about 275 inmates and officers. There is a growth in the total population of the institution and we have assumed an increase in the future to 500. The farm is divided, as will be seen by the map, by a ravine which passes through from southwest to northeast, going out of the north side near the middle of the property. All of the buildings, except the imbecile ward, are east of this ravine.

"The main building, hospital, old men's ward, men's ward and laundry at present have sewers all of which outlet into the covered sewer in the bed of the ravine. This sewer extends from the barn-yard to the north line of the property, from this point to Swan Creek, a distance of one-fourth mile the stream is not covered. Swan Creek receives all the sewage and carries it a distance of four miles through the city to the river.

"Near Arlington avenue, a few feet east of the culvert, is located an open catch basin which receives the sewage from the main buildings.

"The stream to Swan Creek is becoming very foul and the infirmary has been annoyed as much or more than any of the adjacent property owners. The infirmary directors some thirty days ago directed us to prepare plans for some form of disposal which would be ample for the present needs, but inexpensive. As the extension of the city sewers to this territory is likely before many years, it is not deemed advisable to spend much money at the present time.

"We therefore submit the following general scheme:

"1st. A sewage reservoir in two compartments, a sludge cham-

ber and a pumping chamber. These two reservoirs are to be arched and covered with earth forming a septic tank. This is ventilated through the smoke stack of the boiler house.

"2d. Pumping plant; small pump house holds engine and pump, steam being furnished from the central plant.

"3d. Force main 680 feet in length to distributing well from which covered carriers of sewer pipe distribute the sewage to eight filter beds.

"4th. Filtration, using the natural soil which is a sandy loam.

"The plans are based on the following figures:

Population to be cared for at present.....	300
Ultimate maximum population	500
Volume of sewage at present time, gallons per day....	18,000
Ultimate volume of sewage.....	30,000
Capacity of tank, in gallons.....	10,439
Estimated cost of plant.....	\$2,500

"The effluent from the filter beds passes through the ditches shown on map and after a flow of about 1,400 feet, reaches the point of outlet of the present sewers.

"The necessity does not apparently exist for the present construction of contact filters or for the expenditure of a considerable sum of money. It is probable that long before the territory through which this effluent runs is built up the extension of the city sewers will furnish an outlet for the sewage of this institution."

The Board voted to approve these plans for the purification of the sewage by the use of septic tanks and filter beds, and notice was sent to the consulting engineers, January 20, 1902.

REPORT ON PROPOSED SEWER SYSTEM FOR LOUDONVILLE.

The village of Loudonville, through the secretary of the board of health, Mr. M. R. Walter, made application for the approval of the State Board of Health of a sewer system proposed for that village. Mr. Flynn, the engineer, was sent to Loudonville November 6, 1902, to make the necessary investigation, and reported as follows:

"Owing to the recent installation of a public water supply the need of a sewer system is being felt more severely than it formerly

was, though for a number of years a system has been a desideratum.

"Plans have been prepared for a system covering the western half of the village with the outlet to the Black Fork at a point below the village and at a place where it is feasible to install disposal works if necessary. This district includes the business portion and much of the more thickly settled resident section also, but owing to the lack of general sentiment in favor it has not been possible to carry through this plan for the entire area, and it is now desired to construct sewers for the business portion only, collecting the funds by private subscription. This business portion includes three blocks of houses and stores, or about 70 in all, representing some 350 people, or about 500 counting the floating population.

"For this business district it is requested that permission be given for a temporary outlet to Black Fork at a point 450 feet south of the Main street bridge. This outlet is removed from any habitation and is at a point in the stream favorable to the rapid disposition of the sewage. At Loudonville the Black Fork has a drainage area of 344 square miles, which should give flow enough to care for the sewage of this district without causing a nuisance. There is no public water supply influenced by the sending of sewage to this stream except that of Zanesville, which is 72 miles below, and now influenced by much more serious pollution from nearer places. It is claimed that the stream is not used to any extent for stock watering on account of the numerous springs on every farm below.

"Owing to the fact that the construction of this small system of sewers in the business district will do much to hasten the introduction of a general system, it might be well to allow the temporary outlet to the creek with the understanding that this outlet shall be abandoned as soon as the remainder of the system is completed, or as soon as a nuisance results from its use, or at the request of the State Board of Health. Attention might be called to the fact that this approval applies only to the outlet for the district outlined on the map filed and that no additional lines of sewers shall be added."

The Board voted to approve the proposed plans, and notice of this action was sent to the secretary of the board of health, Mr. M. R. Walter, November 17, 1902.

REPORT ON SEWERAGE FOR MAUMEE.

It was learned that the commissioners of Lucas County were constructing a sewer for Maumee without having submitted plans to the State Board of Health. Their attention was called to the law requiring the Board's approval and they presented an application for such approval.

Dr. W. C. Chapman, a member of the Board, was appointed a committee to make the necessary investigation. He visited Maumee on November 13th, and in company with two of the county commissioners and representatives of the village investigated the new sewer which is being constructed. Dr. Chapman reported as follows:

"The Commissioners had authorized the construction of a sewer about seventeen hundred feet in length with an outlet into the river fifteen inches in diameter tapering to eight inches at the head. This outlet is a new one which has never been brought to the attention of the State Board of Health for its approval. The commissioners did not think it necessary to do so for the reason that nothing but drainage of surface water will be allowed to be carried by the sewer.

"The sewer runs along the highway crossing the same and passing down an unused street into the river. The condition of the adjoining land is such that drainage is necessary. The cellars of houses have from two to five feet of water in them and crops have been ruined by water standing over the ground. This condition arises in part from the raising of the roadbed so that water must stand until it passes into the ground or is taken care of by evaporation.

"Elbows have been placed every fifty feet along the sewer into which soft tile drains carry the accumulated water. Catch basins have been constructed at every proposed street intersection. There is no house located on the whole length of sewer nor is there likely to be any for some time to come. A soft tile drain is being laid to the cellar of a residence just building at least three hundred feet from the road to carry water from the cellar.

"The building of this sewer, really a covered drain, seems to be imperative for the comfort and health of the community. The authorities pledge themselves that no connection shall be made at any time with any building, cesspool, or other structure that will permit of any sewage passing into the sewer. As there are no water works whereby such sewage can be washed into it, it does not seem probable that any attempt will be made to so use it.

"I would report favorably upon the proposition that the county commissioners be permitted to complete the sewer with the understanding, in writing, from them that the sewer will be kept free from sanitary connections. I have had a resolution passed by the village council of Maumee pledging that if at any time the sewer becomes a nuisance the same will be rectified. This resolution which becomes a part of this report is hereto attached. At the same time that permission is given to complete the work, I would suggest that it be plainly stated that the county commissioners have grievously erred in neglecting to submit plans for the approval of the State Board of Health."

RESOLUTION.

"Be it resolved by the council of the village of Maumee, Lucas County, Ohio, that the said village of Maumee hereby agrees to and with the Board of County Commissioners of Lucas County, Ohio, that if at any time in the future the sewage from the sewer or ditch being constructed by said Board of County Commissioners in the Third Ward, or Miami Division, of the said village of Maumee, becomes a nuisance inimical to public health, the said village will in all things care for the same at its own cost and expense and be responsible therefor. Adopted, November 7, 1902.

"Attest: WATSON RICHARDSON, (Signed) JOHN A. SMITH,
"Village Clerk. Mayor.

"I, Watson Richardson, Clerk of the village of Maumee, Ohio, do hereby certify that the foregoing is a true and correct copy of a resolution adopted by the council of the village of Maumee, Ohio, at a meeting held on the 7th day of November, 1902.

(Signed) WATSON RICHARDSON,
"Village Clerk."

The Board voted to approve the plans for this sewer upon the condition that no sanitary drainage should be permitted to enter it, and that it should be used exclusively for cellar drainage and surface water. Notice of this action was sent to the commissioners of Lucas County, December 3, 1902.

REPORT ON PROPOSED SEWERAGE FOR NORWALK.

At a meeting of the Board held October 15, 1902, the Secretary presented plans for the city engineer of Norwalk, for a sewer district in the western part of the city; and the following report of the engineer, Mr. Flynn, upon his investigation of the proposed sewer which was made October 14, 1902, in company with the city engineer.

"The proposed sewer is to drain a district in the western part of the city, bounded by Main Street, Pleasant Street, W. and L. E. R. R., and the west corporation line. This district contains approximately 192 acres and it is sparsely built up as yet with the exception of Pleasant, Cortlandt, and Main streets. The sewer will be a little over a mile in length, starting at Pleasant Street sewer, then running west to a point near the west corporation line then north to a ditch leading to the east branch of the Huron River, about one-third mile away. There will be one branch on Cortland Street. The outfall sewer will be 20 inches in diameter and is

designed to carry both storm water and house drainage as do all the sewers in Norwalk. The sewer is especially needed to carry off the storm water from the low land through which it runs and to divert the flow of the Pleasant Street sewer from the ditch running along the side of the street for nearly a mile finally joining the Washington Street sewer in the northern part of the city. This Pleasant Street sewer is a nuisance which is objectionable to a large number of people and which will be abated or rather transferred by the proposed improvement. The outlet to the new sewer is in a wild ravine at the edge of the W. & L. E. R. R. property and more than one-third mile from the nearest house. This ravine is already polluted with sewage from a private sewer receiving the drainage from the W. & L. E. shops, from a pickle factory, and a few private houses. The house drainage will be diverted from this sewer by the proposed new sewer.

"There is no doubt that the new sewer will create a nuisance at its outlet but at the same time it will abate a nuisance in the city where it is objectionable by transferring it to an inaccessible and uninhabited locality. In fact, all the sewers of Norwalk create more or less of a nuisance and it is only a question of time until it will be necessary to devise some other means of caring for the sewage other than by dumping it into the several ditches and small creeks.

"Owing to the lay of the city it will probably be better to have at least two final outfall sewers instead of trying to secure one at a much larger expense. It is believed that the proposed sewer will easily join onto a trunk sewer from the western part of the city leading down to the Huron River or to the low land bordering same for disposal works."

The Board voted to approve the plans proposed for sewers for this district, but only as a temporary expedient; and in the letter of approval sent to Mr. John Laylin, city engineer of Norwalk, October 20, 1902, it was stated that the Board was of the opinion that this sewer would simply transfer the nuisance from one place to another; that a much smaller number of persons would be annoyed by the nuisance so transferred, but that Norwalk had reached the proportions where it should expect to care for its sewage in a proper manner, and the Board strongly urged that the question be taken up at once of providing a comprehensive system of sewerage with sewage purification works.

REPORT UPON PROPOSED SEWERAGE FOR PAYNE.

Upon the request of the mayor of the village of Payne, Ohio, for an investigation of a sewer system proposed for that village the engineer

Mr. Flynn, made the investigation on August 1, 1902, and submitted the following report:

"The village of Payne comprises within its corporation an area approximately a mile square. This territory is extremely level, sloping slightly to the southeast to Flat Rock Creek, and it is covered with a black, heavy soil very retentive of water. None of the streets are paved or even properly macadamized and in wet weather all are in poor condition, full of mud holes* and puddles of stagnant water. To better this condition most of the streets have been tiled to carry off surface water and drain the streets, but the tiles were evidently poorly laid as now they are continually stopping up and render very poor service. Owing to the poor condition of the streets it was decided to pave the business section. This paving would require that the storm water be properly cared for and a system of sewers has been designed for that purpose.

"The system as planned includes 2,300 feet of 28x45 inch brick egg-shaped sewer on Merrin and Richards streets, 1,500 feet of 15-inch vitrified tile sewer on Main Street, and 1,120 feet of 12-inch vitrified tile sewer on Laura Street, or 4,920 feet in all, with inlets for storm water and Y's for house connections. These sewers are planned to carry the combined storm water and house drainage from the central portion of the village, though it was stated that they were intended to be used for storm water only. The sewage is to be discharged direct to Flat Rock Creek at a point 600 feet west of the eastern corporation line of the village. The stream at this point is totally unable to care for the sewage by dilution and a nuisance would inevitably result from the sending of even a small amount of house drainage to it.

"The stream is dry for short periods each year and the flow is very small for nearly the entire summer and fall. No public water supplies would be influenced by the admission of sewage to the stream until Napoleon and Toledo are reached, respectively 46 and 81 miles below.

"As the village has at present no public water supply and is not likely to have for some time according to local opinion there would be but a small amount of house sewage sent to the sewers. This small amount would consist mainly of the waste from kitchen and slop sinks and from bath tubs.

"It is reported that Payne has continually a large number of typhoid fever cases resulting no doubt from the use of water from the shallow wells contaminated with the drainage from vaults. With conditions as stated it is inadvisable to install a sewer system that can be used only until a public water supply is introduced and this supply needed at once, even though this need does not seem to be recognized by the local residents. After the introduction of a public water supply and water closets come into general use, a combined system of sewers will be very unsuit-

able. Owing to the lack of opportunity for disposal of the sewage by dilution it will be necessary to install purification works, making a separate system of sanitary and storm sewers much more desirable than the combined system.

"With a proper consideration for future conditions it would seem advisable to construct at present a system of storm sewers extensive enough to give efficient drainage for the streets. These storm sewers could be sent direct to the stream at the most convenient points and the expense of the large outfall sewers saved. Owing to the low summer flows this scheme might have to include some work on the channel of the stream so as to provide a free outfall for the storm water. Then owing to the unsatisfactory condition of the private water supplies it would be advisable to install a public water supply. After this plant was in operation it would be time to put in a system of sanitary sewers to care for the house drainage. After these improvements have been completed it would be proper to figure on paving the business streets. The present poor condition of the streets could be improved upon until that time by cleaning them and by providing efficient drainage."

The Board voted to disapprove these plans, and in the letter conveying this action of the Board which was sent to Mr. John D. Houser, mayor, August 18, 1902, it was stated that the Board would not approve the emptying of sewage into the creek without the sewage being first purified in a manner satisfactory to the Board, and further, that the Board believed that they should install a purely separate system of sewers when it became necessary for the village to provide for sanitary sewers; that the Board was unwilling to approve a system of purely storm water sewers, but considered that their present plans should be modified so as to do away with the expensive outlet sewer which would be necessary if the sewers were not to carry house drainage.

REPORT ON SEWERAGE AND SEWAGE PURIFICATION FOR PLAIN CITY.

At the meeting of the Board held October 15, 1902, Mr. J. P. Force, consulting engineer, presented plans for a system of sewers with sewage disposal works for the village of Plain City, with the following report:

"The system of sewerage proposed is the separate or sanitary system for the conveyance of sewage only.

"The sewers planned will have ample grades and will be provided with manholes and automatic flush tanks. They will be constructed of

sewer pipe with cemented joints. The sizes are to be as shown on the plan presented herewith.

"The village is provided with a public water supply the source being a deep well.

"It is impossible to obtain any data of the daily pumpage as no records are kept.

"It is proposed at present to construct about three miles of sewers and to provide for the purification of a limited amount of sewage with due allowance for future extension of the works.

"The plan proposed for sewage purification consists in the septic process in masonry tanks of a size sufficient to hold a twelve hours flow, followed by aeration by the sewage falling over cast iron discs with serrated edge, followed by the intermittent treatment in contact beds composed of coke or railway cinders.

"The contact beds are to be operated automatically by a device which I have reported to your honorable body in the cases of Delaware, Celina and Westerville.

"The contact beds are arranged to work in series of three, and are so proportioned as to treat the septic effluent after aeration at the rate of four hundred thousand gallons per acre of effective area daily.

"These rates are the same as provided for in my plans for Delaware, Celina and Westerville heretofore approved by your honorable Board.

"There is nothing more difficult to secure in sewage purification works than the proper size for the first installation; for if the tanks or filters or contact beds be too large for the flow of the sewage to be treated in the first few months the results will be poor and the works condemned before they are really in full operation.

"With the important point in mind, and taking into consideration that a village like Plain City will not furnish much sewage, I have designed the works in units, each capable of disposing of and purifying to a reasonable extent twelve thousand five hundred gallons of sewage.

"It is proposed to construct at present two of these units or works sufficient to properly purify twenty-five thousand gallons of sewage daily.

"When the flow increase beyond that amount additions are to be made to the works as fast as it will become necessary, but it is not likely that such additions will be made for some time to come.

"A point in this connection, which I desire to call your attention to, is, that I have been retained as consulting engineer during the construction of the work, and to inspect and to supervise the operation of the works for *one year after they are placed in operation*.

"This places the management of the works during the most trying period of their existence where it should be placed, in the hands of the engineer responsible for their construction.

"Three drawings accompany this report. A general plan of the sewerage system, showing the location of the sewage purification works; a general plan of the sewage purification works, and a detailed plan of the septic tanks and aerator."

These plans were approved by the Board, and notice of this action was sent to the consulting engineer, Mr. Force, October 20, 1902.

REPORT ON A STORM WATER SEWER FOR PORTSMOUTH.

At the meeting of the Board held October 15, 1902, the secretary presented a map showing the location for a storm water sewer for the city of Portsmouth, and the following communication from Mr. B. C. Bratt, city civil engineer:

"I herewith send you a map of the city of Portsmouth, Ohio (the latest one published), on which I have delineated in red ink the location of the proposed Robinson Avenue main trunk and storm water sewer from Lincoln Street to its outlet in Lawson's Run as marked on the map. This sewer has not yet been advertised.

"I also send you a copy of the advertisement of the letting of the grading of streets on the outskirts of the city—as noticed in the Engineering Record of July 19th—embracing the necessary culverts and drains for said improvement. The branches empty into the sixth ward sewer which was constructed in 1893—the others are culverts across the streets at the county ditch, except the fifteen-inch sewer pipe on Offners Street which is built to drain a low basin in Offners Street, near the cemetery, and which will empty into the county ditch, and carries storm water only, and is only expected to answer the purpose of an open drain. None of these sewers carry anything but storm water, or such surface water as may gather after a rain. The new outlet contemplated is at the Robinson Avenue sewer at Lawson's Run, where all the rain that falls on the watershed drained by that sewer must eventually go. All sanitary sewers that have been constructed since 1899 are branches of the original sewer built that year, and have no new outlets."

The Board voted to approve this proposed storm water sewer provided an ordinance be passed by the council prohibiting the use of said sewer for any purpose other than storm water and cellar drainage. Notice of this action was sent to Mr. Bratt, the city civil engineer, October 20, 1902.

REPORT OF CHANGE IN OUTLET OF SEWERAGE OF
SIDNEY.

Mr. H. E. Riggs, consulting engineer, of Toledo, requested the Board's approval of a change in the plans for sewerage for Sidney, said plans having been approved by the Board (see Sixteenth Annual Report of the Ohio State Board of Health, Page 126), viz: to change the location of the outlet sewer from "A" to "B" as shown on a map presented to the Board, and remove the dam in the river.

At a meeting of the Board held April 23, 1902, it was voted to grant permission to locate the outlet sewer at the site of the proposed sewage disposal works, below the dam, said disposal works to be constructed whenever that should be deemed necessary by the State Board of Health.

REPORT ON ADDITIONAL SEWERAGE FOR TOLEDO.

The Board was requested to approve sewerage for a certain small district in Toledo, with a discharge of sewage into Swan Creek. The matter was referred to Dr. Chapman, as committee, who reported as follows:

TOLEDO, OHIO, October 31, 1901.

"Dr. C. O. Probst, Secretary, Columbus, Ohio.

DEAR DOCTOR:—Enclosed you will find a communication received a few days since. After a full consideration of the subject I would report favorably upon the proposition to permit the establishment of the proposed sewer district.

"Swan Creek is navigable to a point considerable above the desired mouth of the sewer. There is always a good depth to the stream and the creek enters into the river near the foot of Monroe Street so that it cannot pollute the water taken from the Maumee by the water station. The area to be drained is small, being a fraction over 55 acres, and sparsely settled. City Park Avenue bridge is fully two miles below the condemned location into which the Walbridge Park sewer was expected to discharge.

"I send under another cover blue prints fully showing the location of the proposed sewer so that our members may vote intelligently and would ask that you obtain a mail vote upon the proposition so that our authorities may provide suitable legislation as soon as possible. The engineer does not wish to go to any expense until he knows that his plans will be acceptable to the State Board of Health.

"Yours,

"W. C. CHAPMAN."

Copy of city engineer's letter:

TOLEDO, OHIO, October 28, 1901.

"Dr. W. C. Chapman, State Board of Health, Toledo, Ohio.

"DEAR SIR:—A petition was made to the common council for drainage for a portion of the territory bounded by Swan Creek, the Miami and Erie Canal and the L. S. & M. S. Ry.

"The engineer under instruction from the council prepared a plan of drainage for this territory making it a sewer district as it was not covered by any existing district.

"In the plan submitted the main sewer discharges into Swan Creek at City Park Avenue bridge.

"From this main it was proposed to run laterals to serve the territory as might be required.

"I desire to get your opinion as to whether the State Board of Health will consent to this main discharging into Swan Creek at this point. The creek at this point is navigable and has a volume of water which would receive the drainage of this small district without adding materially to its pollution and there are several district sewers emptying above this point.

"The proposed outfall sewer would be 30 inches diameter and is intended for both storm water and sewage. The latter would be very light for many years. I send you herewith blue prints showing the proposed district and location of main sewer, also a small city map showing the proposed district, colored in red, from which you can see its relation to surrounding districts. The main sewers of adjoining districts emptying into Swan Creek are shown in blue.

"I submit this for your consideration prior to any legislation establishing the district.

"Yours respectfully,

"(Signed) G. W. TONSON,

"City Civil Engineer."

The Board voted to approve these plans, and notice was sent to the city civil engineer, November 8, 1901.

REPORT ON PROPOSED SEWERAGE FOR WAPAKONETA.

At the meeting of the Board held April 24th, 1902, plans for sewerage for the village of Wapakoneta were presented by the city solicitor, Mr. Roy Layton, and also the following report of the engineer, Mr. Flynn, who visited Wapakoneta, April 19th, and investigated the present and proposed sewerage:

"Information was secured from Mr. Samuel Craig, city engineer, and Mr. Kohler, health officer.

"In the 1900 census Wapakoneta had 3,915 people, and it is estimated that its present population is not much over 4,000.

"There are 422 services on the public water supply system of which 181 are in use for lawn and street sprinkling only. The 241 regular services must represent at least 1,200 people, of which about 500 have the use of water closets as determined by the 114 in use.

"The average daily consumption of water for the year is 206,322 gallons, but for the six months with no sprinkling it is 173,900, or 145 gallons per general consumer.

"The sewage from the 500 people using water closets and the surface drainage is cared for by eight systems of combined sewers, five of which empty direct into the Auglaize River and three indirectly through Skinner Run; also by a number of private sewers which empty into both the river and run.

"It is further proposed to extend the sewers of the village on the combined system, the corporation having been divided into eleven sewer districts for this purpose.

"Two of these districts, Nos. 4 and 5, are partially sewered by the sewers already placed. One, No. 7, is now being sewered by combined sewers on Water and Auglaize streets, constructed without the approval of the Board. The approval of the outlet of this district is now desired. It is further proposed to construct more sewers in this district making in all a little more than 1.5 miles tributary to this one outlet.

"District No. 3, is now partially sewered by three short combined sewers in Auglaize and Blackhoff streets, all emptying into Skinner Run. It is proposed to turn Skinner Run into a combined sewer for an outlet for the drainage of this district.

"None of the seven remaining districts have any sewers as yet and are not likely to need any, except No. 6, which is near the center of the village where it must seek an outlet through No. 5 or No. 7.

"It is proposed to sewer these districts as required by combined sewers with outlets direct to the Auglaize River.

"At Wapakoneta the Auglaize River has a drainage area of 128 square miles. As determined from the runoff of the Maumee and other Ohio streams the minimum average flow of this stream must be less than .01 cubic feet per second per square mile of drainage area or not much more than one cubic foot per second. According to Mr. Rudolph Hering this represents an ability to dispose of the sewage of from 150 to 250 people, a less number than is now using the sewers.

"That this stream at times reaches this low stage is borne out by the fact that at the time of inspection it was flowing only twenty-one cubic feet per second by actual gaging, or only twenty-one times the minimum

average flow, while the monthly average for April is usually nearly one hundred times the minimum average flow.

"Further, the ability of this stream to dispose of but a very small quantity of sewage, in an unobjectionable manner, is easily proven by the notorious nuisance existing in this village every season from the sending of the present amount of sewage to it. It is true that much of this local nuisance could be overcome by the rectifying of the river channel and conducting all the sewage to this channel but it is also quite certain that the nuisance would not be entirely abated. It even might have a more serious effect on the village as the sewage would be carried farther below the corporation where the lower riparian holders would be very apt to enter strong objection to the continuance of the nuisance.

"Under present conditions the sewage is dumped promiscuously over the bank of the stream where it spreads out into little streams depositing much of its solid matter and causing a very foul condition of affairs. This pollution of the river extends well below the center of the village, as shown by the deposits of black sewage mud in the bed of the stream.

"If it is true that the present amount of sewage which enters this stream causes a nuisance it is very certain that any increase in the amount will only increase pollution.

"With conditions as found it is not advisable to allow further pollution of this stream by the construction of sewers on the combined system. If the present nuisance can be endured the construction of sanitary sewers might be allowed for such time as would be necessary for the installation of some method of treating the sewage. With sanitary sewers built after a comprehensive plan this would be possible, but with the combined system with the large number of outlets it would be very expensive and might even be impracticable. With the combined system any scheme of purification would require an intercepting sewer running the full length of the water front. This would involve no insurmountable difficulties if the grades of the sewers already in are such that they can be tapped by such an interceptor.

"With the future considered it might be more economical to turn over, for storm water only, all the combined sewers already built and to construct a separate system of small pipe sewers for the sewage proper.

"If it is not desired to do this it will be necessary in order to abate the present nuisance, to put in an interceptor for the dry flow of all the combined sewers, in place and contemplated.

"This interceptor would prevent the entrance of sewage to the river except during heavy rains, and it could be designed to carry the dry flow to some point below the village where it would be possible to purify the same before allowing it to enter the river.

"Owing to the fact that in villages of this size, situated on small streams, almost all the storm water can be cared for by the surface gutters and ditches, with a few short storm sewers for the paved streets, it is almost never advisable to put in the combined system of sewers. It may be said to be never advisable to do so where it is also necessary to purify the sewage before it can be sent to the rivers.

"It will usually be found to be much more economical to put in small pipe sanitary sewers, with a few short storm sewers, than to put in the combined system, even leaving out of consideration the question of disposing of the sewage."

The Board voted to disapprove the plans, and notice of this action was sent to the mayor and council, April 30, 1902, with the statement that these plans were disapproved for the reason that prior examinations showed that at times the Auglaize River into which they proposed to discharge their sewerage system, was already polluted by the amount of sewage gaining access to it. The Board was of the opinion that the Auglaize River at that point did not have a sufficient flow at all times to carry away the sewage of Wapakoneta without the creation of a nuisance, and that it would be necessary for them to provide some satisfactory manner of purifying the sewage, and in order that that might be done their plans should provide means of carrying all the sewage to one point, and to a place favorable for the location of sewage disposal works.

At a meeting of the Board held June 27, 1902, Mr. H. E. Riggs, for the firm of Riggs and Sherman, consulting engineers, of Toledo, presented plans for a system of sewerage for Wapakoneta, with the following statement:

"We desire to submit for your action today the outline plan for a system of sewerage for Wapakoneta and ask for your approval of certain outlets before completing our work.

"We had hoped to submit complete plans at this time but the delay of the council of Wapakoneta in the selection of an engineer prevented us from completing our surveys and investigations there early enough to complete the work.

"Wapakoneta is the county seat of Auglaize County, and is situated on the south bank of the Auglaize River. The principal business street of the town, Auglaize Avenue, parallels the river. There are at present a large number of sewers built, the principal ones of which are indicated on the map submitted herewith. The outlets of these sewers are in the Auglaize River, between Water Street and the outlet of Skinner's Run, a distance along the river front of about 4,000 feet.

"The river is a sluggish stream with a wide channel full of undergrowth and grass so that all solid sewage emptied into it remains where

deposited until it is decomposed. The stream is in bad shape at present and is getting worse as time progresses.

"The principal drainage outlet for the village is Skinner's Run, a small stream emptying into the river about 1,000 feet below Blackhoff Street. This run is partially covered with stone arches, brick arches, wooden boxes, and various other forms of construction. A great portion of its length is in alleys back of residence property and through residence property. This stream is rapidly becoming as much of a nuisance as the river.

"We propose the following: First, a main sanitary sewer along the river bank from the east corporation line to a point below the cemetery sufficiently removed from all residences for sewage disposal purposes. This sewer to be ultimately the main sanitary sewer of the village and intercepting the sanitary flow from sewers now in existence.

"You will note that Auglaize Avenue is sewered from end to end. Blackhoff Street is also sewered for nearly its whole length. Both of these streets are paved with either brick or asphalt and the construction of new sewers in these streets is extremely undesirable. The property can all ultimately be reached by sewers in the alleys.

"We propose to use in all parts of the town not sewered at present, a strictly separate system, keeping all storm water out of the sanitary sewers. We propose to cut out all sanitary sewage from sewers now built and carry in the sanitary sewer to new outlet. We do not wish to install a pumping plant and sewage disposal works at present as we feel that this alone will require more money than we have available for work this season. We propose to build a main storm water sewer substantially on the present route of Skinner's Run from the C., H. & D. R. R. to the river, using this same route for sub-main sanitary sewers. The corporation is at present unable to raise sufficient money to build the sewers which are vitally necessary and establish disposal works and the necessary pumping plant. We therefore ask your approval, first, of the separate system; second, of the storm water sewers along Skinner's Run with an outlet into the river at a point about one mile below town of the sanitary sewer.

"In our opinion such action on your part will enable us to secure the construction of these sewers and to secure the abandonment of existing sanitary outlets into the river by connecting all sewers now in use with the new main and by abating a large number of outlets which have been in use for a number of years.

"We fully recognize the necessity of sewage disposal at this village in the near future, but we are satisfied that the public sentiment at Wapakoneta is not ready for sewage disposal, nor will the finances of the village permit council to install a proper plant. Such an order by your Board would delay action on the much needed main sewer for an-

other year. We therefore ask your approval of the separate system and for your approval of the two outlets under such conditions as may seem to you proper."

These plans were disapproved by the Board as no provision had been made for purifying the sewage. The engineers, Messrs. Riggs and Sherman, were notified of this action July 14, 1902.

Later these engineers submitted plans for a disposal plant and maps of the sewer system for Wapakoneta, with the following communication:

"The eastern part of the village is now sewered partially, on the combined system, and it is not likely that additional work will be done in that section for some years. We provide for intercepting the flow of sanitary sewage in this partial system and carrying the dry weather flow in our sanitary trunk sewer until such time as separate sanitary sewers are necessary. Our plans provide for these sanitary sewers. In all other portions of the village the plans are for a strictly separate system.

"Skinner's Run, which now carries a large volume of sanitary sewage, is to have both sanitary and storm water sewers. The sanitary main sewer parallels the river to a point west of the village near the Catholic Cemetery. At this point there is a natural amphitheater, so located that it is remote from highways, and several hundred feet from the nearest dwelling. This is the only desirable location for disposal works. In this location we propose to install disposal works.

"The plant recommended consists of grit chamber, septic tank, and pumping reservoir. The outlet of the pumping reservoir is into ejector stations in which are to be installed two Shone ejectors, supplied with compressed air from a compressor located at the electric light works. The sewage is then to be lifted to the filter beds. We provide for the option of either five intermittent filtration beds, each 40x180 feet, with four feet of gravel as a filtering medium, or five coke contact beds 30x100 feet.

"The system is designed to provide for 160,000 gallons of sewage per diem. From six to eight hours storage is provided for in the tank.

"We anticipate a benefit to the bacterial action by reason of the aeration secured in passing the Shone ejectors.

We ask your approval: First, of the separate system of sewers, with storm water outlet at point where Skinner's Run enters the Auglaize River. Second, interception of sanitary flow from sewers east of the C., H. & D. R. R. and use of the existing outlet as a storm water outlet. Third, sewage disposal by means of the septic tank supplemented by intermittent filtration at the point shown on the map."

These plans were approved by the Board but with the provision that the disposal works should be completed and put in operation by the

time the main sewers and connections with existing storm sewers had been made.

Notice of this action was sent to the consulting engineers, Messrs. Riggs and Sherman, August 9, 1902.

REPORT ON SEWAGE DISPOSAL FOR THE WASHINGTON COUNTY INFIRMARY.

The infirmiry directors of Washington County asked the Board's approval of plans for sewage disposal works for the infirmiry. Accordingly, Mr. Flynn, the engineer, was sent to the infirmiry on October 30, 1902, and in company with Mr. J. K. Gregory, clerk of the board of infirmiry directors, made the necessary investigation. Mr. Flynn reported as follows:

"At present the infirmiry has about 100 residents, including inmates and officers, and the average is but a few above this figure. The water supply is obtained from the city of Marietta.

"At present the sewage and waste water is sent to a small run flowing past the institution and down to Duck Creek nearly a mile below. During dry seasons this run becomes quite offensive and the nuisance was complained of to such an extent by the few neighbors interested, that other disposition of the sewage became necessary.

"Plans for the disposal works were prepared by Mr. T. M. Ripley, C. E., now of Marietta. These plans include a covered septic tank and two contact beds. The septic tank is to have a capacity of 3,700 gallons which is probably in excess of the average daily flow of sewage, though no figures on this could be secured. The contact beds are each to be 8x14 feet and one foot deep. They are to be filled with gravel, coke, or broken stone, depending on the relative cost of these materials at the time of construction.

"As the nuisance is not serious except for short periods, it is believed that the system as designed will be adequate and that it will prevent further trouble if properly constructed and operated. Request was made that, since the nuisance was not serious and as the nuisance did not extend far from the institution, permission be granted to construct the septic tank at first and operate the same for a season, to determine whether this alone would abate the nuisance.

"Taking into account the interests concerned it would no doubt be well to allow this experiment to be made, provided the complete plant, as designed, be installed if the trouble should not be entirely abated, or

upon the request of the State Board of Health that it should be completed."

The request to first build and operate the septic tank to determine whether this alone would abate the nuisance caused by the sewage of the infirmary was submitted to the Board, and it was voted to grant this request with the understanding that the complete plant, as designed, be installed if the nuisance should not be entirely abated, or whenever required by the State Board of Health.

Notice of this action was sent to Mr. J. K. Gregory, clerk of the board of infirmary directors at Marietta, November 10, 1902.

REPORT ON SEWERAGE AND SEWAGE DISPOSAL FOR WASHINGTON C. H.

At the meeting of the Board held January 15, 1902, Mr. Frank M. Kennedy, chief engineer of Washington C. H., and Mr. H. J. Shaw, consulting engineer, presented plans for changes in the sewerage system of that city, with a report of which the following is a part:

"To the Honorable State Board of Health.

"GENTLEMEN:—Consistent with a resolution passed by the city council of Washington C. H., I respectfully submit plans for intercepting the present storm drains and sewers of this city, together with a method of purification for the sewage, showing: Map showing route of proposed intercepting sewer and present sewer; details of manholes, inlets and outlets bulkhead; plan and detail of purification works.

"Washington C. H. had a population of about 5,750 by the census of 1900. It is situated on Paint Creek about thirty-five miles from Columbus, Ohio. Paint Creek empties into the Scioto River about three miles below Chillicothe.

"The city is located on particularly level ground with a general slope approximating five feet to the thousand towards the various drains now existing. As is the case with most towns, the present drains and sewers were designed with little or no consideration for the future needs or growth of the city.

"As a result there now exists a number of drains used for both storm water and house wastes, with outlets directly into the river at whatever point was convenient at the time they were constructed.

"Owing to the building up of the territory adjacent to these sewers and the additional connections for house wastes, and also the gradual encroachment of buildings towards the outlets, it is now considered

after considerable thought and agitation of the subject, that the most practicable and in fact the only method, is to intercept these sewers near their various outlets and carry the storm water and sewage to an outlet and purification works below.

"This then creates a combination storm water and sewer system with an outlet for storm water about 2,000 feet below the edge of the more thickly populated districts. At this point and near the outlet an automatic interceptor has been devised which will carry the sewage during dry weather to the purification works about 2,300 feet below this point.

"The further arrangement of the system and the purification of the sewage was intrusted to Mr. H. J. Shaw, consulting engineer, of Columbus, Ohio."

Mr. Shaw's report in part is as follows:

REPORT ON SEWAGE PURIFICATION WORKS.

"After looking over the various projects for the disposal of the sewage of your city, I find upon mature consideration that more favorable conditions exist for the purification of the sewage by the septic treatment followed by coke contact beds, than by any of the other methods.

"I intercept the proposed sewer near its outlet below Elm Street by an automatic arrangement, which in time of storms, when dilution furnishes sufficient purification, closes, and thus allows both storm water and sewage to flow to the river at this point.

"In dry weather the interceptor diverts the flow from the storm drain into a twenty-inch sewer which leads to the purification works.

"The purification works are to be located about 2,300 feet from this point, on what is known as the D. L. McLean land at the junction of Paint Creek and its east fork.

"This location is particularly favorable owing to its isolation, there being no houses of any account within about 2,000 feet.

"I have arranged for the first installation a plant capable of purifying 250,000 gallons of sewage. The septic tanks are so divided as to permit of any length of treatment found necessary by experimentation and so assumed at twelve hours. Such treatment having been found most satisfactory at the Massachusetts experiment station.

"The contact beds are to be three feet deep and filled with a coke of a size that 80 per cent. will pass through a one-fourth-inch mesh and none through a one-eighth-inch mesh. Carriers and under-drains as shown on plans.

"The rate of flow is to be 400,000 gallons per acre per day.

"Sufficient ground has been left between the primary beds and Paint Creek so as to allow the installation of secondary contact or filter beds, if it should ever be found necessary."

The Board voted to refer these plans to the engineer, Mr. Flynn, for further investigation and report.

Mr. Flynn visited Washington C. H. on January 21, 1902, and went over the ground with Mr. Kennedy. The following is a part of his report:

"To remove the nuisance from the vicinity of the city and ultimately to abate it entirely plans have been prepared and presented for approval. These plans include an intercepting sewer some 8,400 feet in length which will start at the upper end of the city and follow along the east bank of Paint Creek, gathering up the flow of the sanitary, storm and combined sewers, carrying the same to the creek at a point just below Elm Street, in the southeastern part of the city, and well below the thickly inhabited section. Further it is proposed to intercept this sewer at its outlet and carry the dry flow some 2,300 feet further down the creek to a point near the confluence of the main stream and the east fork and there purify the same by means of septic tanks and coke contact beds.

"For financial reasons three years' time is requested for the installation of the disposal works. In the meantime the sewage will be kept out of the creek opposite the built-up section and the present nuisance abated, but only to have it reappear in a more concentrated form at the proposed Elm Street outlet. At this point a much smaller number of people will be affected, but it is also quite certain that the pollution will extend further down the stream and be objectionable to a larger rural population. The continued pollution of the stream by raw sewage will result in an ever-increasing nuisance which will furnish just ground for complaint by the riparian holders below the city; it will seriously affect the purity of the ice supply for Greenfield, but it is not believed that the present water supply of Greenfield will be influenced to any extent during high water when the creek overflows the filtration well and enters direct.

"The postponement of purification at Washington C. H. will, however, work against the use of an emergency intake at Greenfield. Notwithstanding the flow of fifteen miles between these two places, and the dilution of the sewage by the time it reaches Greenfield by the run-off from 247 square miles, it is not believed that the water will be free from contamination at the latter point.

"While the intercepting sewer will not add at once to the quantity of sewage entering the creek, it will certainly give an incentive to put in more branch sewers and to make more connections to those already in place. Any material increase will cause such a nuisance in the

stream that purification will be demanded at once and it is not at all certain that the present quantity will not cause such action.

"If it were possible to have disposal works installed immediately upon complaint from the nuisance an extension of time might be proper but if the sanitary conditions of the stream are to be made no worse or improved, the works should follow the installation of the interceptor by not more than one year. Conditions at the end of three years' time would be such that it is not at all desirable to postpone the purification of the sewage for such a period.

"In reference to the interceptor itself, it has been stated that the plans are made for a combine sewer, which will care for both storm water and sewage proper. On account of the certainty of the necessity of purifying the sewage of this city before it can be admitted in quantity to Paint Creek, it seems advisable that this plan be modified and that the interceptor be so designed that it will care for the sewage proper and for the first flow only of the storm and the dry flow of the combined sewers. It would be more advisable, however, to abandon the use of the combined sewers as such, using them for storm water only, and to put in sanitary sewers to care for the few house connections already made to the combined sewers. This plan of a sanitary intercepting sewer would no doubt be cheaper, even including the extra sanitary sewers necessary, than the combined interceptor and would be much better from a sanitary standpoint. The sanitary interceptor would carry to the disposal works all the sewage of the city without the large admixture of storm water, making purification much easier and more uniform. It would keep all true sewage from the creek at all times, not allowing every local rain to pollute the stream with a mixture of sewage and storm water.

"If purification is not required at the present time the sanitary sewer could be carried to the disposal site, thus further removing the nuisance from the city, and give greater dilution from the flow of the east fork.

"The modification of the plans should then include a sanitary interceptor in place of the combined, this interceptor to take the entire flow of the sanitary sewers and the first flow of the storm sewers, also change the combined sewers to storm sewers and put in small sanitary sewers for the house drainage now flowing in the combined sewers.

"A separate system of sewers, sanitary and storm, would be advantageous over the combined system in the matter of cellar drainage. Now cellar drains must be sent direct to the combined system, a very objectionable method, while if separate sewers were in use, cellars could be drained to the storm water drains as they should be.

"It would seem that a sanitary interceptor is more economical than a combined interceptor, both in the first cost and in the cost of purifica-

tion and that when constructed it will better serve the interests of the community in maintaining better sanitary conditions both in the city and in Paint Creek.

"In referenece to the system of disposal it may be stated that there is no doubt but that the works as planned, if properly constructed and operated, will purify the sewage, but it seems advisable from the information obtained to investigate the use of some other material for the contact beds, such as gravel which can be obtained on the site, or broken stone which is also easily obtained and at probably a reduced price over coke, which has to be brought in. Further, it might be economical to use intermittent filters for the final treatment in preference to contact beds and even the use these filters alone would bear investigation. From the local authorities it seems that there is an abundance of gravel and sand both in the bed of Paint Creek and in the neighboring banks, and it is certainly not good policy to neglect these materials in the design of the purification works.

"In regard to the plans as presented it may be further stated that details of the working of the beds are not given, and no method of disposing of the sludge from the septic tanks is devised."

The Board voted to approve the amended plans for changes in the sewerage system of Washington C. H., including plans for purification works, subject to the following conditions:

1st. That the sewers and purification works be constructed in accordance with the amended plans without modification, unless such modification shall be approved by the State Board of Health.

2d. That a sufficient bond issue be authorized to construct the proposed sewers and purification works.

3d. That the sewage purification works shall be constructed as soon as the proposed changes in sewers shall have been made.

Notice of this action was sent to Mr. Kennedy, the city engineer, March 5, 1902.

REPORT ON SEWAGE PURIFICATION FOR WESTERVILLE.

At a meeting of the State Board of Health held January 15, 1902, Mr. J. P. Force, consulting engineer, presented plans for a sewage system and sewage disposal works for the village of Westerville, with the following statement:

"Westerville is a village of (according to the Federal Census of 1900) 1,462 inhabitants, situated in Franklin County, on Alum Creek, about ten miles north of Columbus.

"The growth of the village in population in the last ten years has been 133.

"Westerville is distinctly a college town, being the seat of Otterbein University.

"No public improvements have been made beyond the grading of the streets and the construction of sidewalks, and storm water sewers and drains.

"The village is well provided with surface drainage."

"The drains discharge for the most part into Alum Creek or into a little run in the southwestern part of the village which flows to Alum Creek.

"A number of house connections have evidently been made with the storm water sewers, and the flow of the sewage in the run referred to is at all times quite noticeable, and in the summer months creates quite a nuisance.

"The village council now propose to construct a system of water works, a system of sewerage, and improve the streets by macadamizing.

"On August 19, 1901, the electors of the village voted to issue \$25,000 for water works and \$20,000 for sewers.

"I have been employed by the village council to prepare plans for a system of sewerage and sewage purification works, and to present the same to your honorable body for your consideration.

"The system of sewerage proposed, which is shown on the plan herewith presented, is the separate or sanitary system for the conveyance of sewage alone.

The sewers are to be constructed of vitrified salt glazed sewer pipe with cemented joints, provided with manholes at all changes of grade or alignment, and with flush tanks at the head of all the lateral sewers.

"The natural depth of the subsoil water will render the use of the sub-drains unnecessary.

"The grades obtained for the sewers are excellent and will insure a cleansing velocity in all cases.

"The plan of sewerage submitted, consisting of four and seven-tenths miles of sewers, together with the sewage purification works will exhaust the appropriation.

"In designing the system ample allowance has been made for the extension of the sewers on all the streets.

"The topography of the village is such that from a point about two hundred feet west of Grove Street, the surface slopes so rapidly to the west to Alum Creek that it is not practicable to construct sewers on the streets west of this point and discharge their contents to the east into the general system.

"On the other hand it would be a very expensive undertaking to

carry the whole sewage of the town to the west, owing to the low lying section in the south part of the village.

"Therefore, when the streets west of Grove Street are provided with sewers they will have to discharge to the west and be supplied with a separate system of sewage disposal, or the flow pumped east to the summit and discharged into the general system.

"There are not over eight houses that will be left unprovided with sewerage facilities west of Grove Street."

SEWAGE PURIFICATION.

"I present herewith a general plan for the purification of sewage at Westerville.

"The system proposed is a combination of the septic process followed by treatment with coke contact beds and afterwards by intermittent filtration through coke filters.

"The general plan presented provides for the treatment of seventy-five thousand (75,000) gallons of sewage in twenty-four hours, or the sewage of one thousand inhabitants contributing sewage at seventy-five gallons per capita.

"The septic tanks are of concrete masonry eight (8) feet deep and eight (8) feet by twenty-six and one-tenth (26 1-10) feet in plan and will contain when full twelve thousand five hundred gallons each.

"Thus each tank of the three shown on plan provides for a twelve hour treatment of twenty-five thousand gallons of sewage.

"The coke contact beds are nine in number and are arranged to operate automatically in series of three.

"They are to be thoroughly underdrained and filled to a depth of three feet with crushed coke.

"Each bed has an effective area of .021 of an acre and is designed to treat the effluent from the septic tanks at the rate of four hundred thousand (400,000) gallons in twenty-four hours.

"The sewage as it flows from the septic tanks to the contact beds will be aerated by a fall of $2\frac{1}{2}$ vertical feet over steps. The sewage will be distributed to each bed in turn by an automatic contrivance, and the effluent will be held in contact for sufficient length of time to give the best results and then discharge automatically by a contrivance operated by the sewage rising in an adjacent bed.

"The automatic features are identical with the ones proposed for use at Delaware and Celina, which have been fully described in reports

on those cities, and detailed plans have been filed with the secretary of your Board.

"Upon discharge from the contact beds the effluent will flow to coke filters six feet in depth proportioned to treat the effluent at twice the rate of the contact beds.

"Each filter receives the effluent from three contact beds.

"It is believed that by the plan proposed a reduction of the organic matter to the extent of 90 per cent. may be expected.

"The works are located in a ravine near the south corporation line, south of Walnut Street.

"It is proposed to discharge the effluent into the run which is fed by springs and at present badly polluted with sewage.

"The run discharges into Alum Creek about one thousand feet west of the point where it is proposed to discharge the effluent from the works.

"It is proposed at present to construct two-thirds of the general plan presented or sufficient to dispose of fifty thousand (50,000) gallons of sewage daily.

"If the sewage can be estimated from the amount of water used per capita by actual consumers in a similar village, the rate at Oberlin, which is thirty-five (35) gallons, would indicate that a provision of works for treating 50,000 gallons would be sufficient for the entire present population of Westerville.

"I respectfully ask that the plans submitted be approved by your honorable body."

The Board voted to approve the plans and proposal, and notice was sent to the consulting engineer, January 20, 1902.

At a meeting of the Board held June 27, 1902, the secretary presented the following communication from Mr. J. P. Force, consulting engineer, in regard to changes in the proposed disposal works of Westerville:

"On the 15th of January, 1902, the plans for sewage purification for Westerville, Ohio, prepared and presented by myself, were approved by your honorable body.

"Since that date the village council have decided to change the location of the works on account of objections made by property owners in the immediate vicinity, who feared that the location of the works might have the effect of lowering the value of their property on account of sentimental objections, which would be urged by the purchasers. The new site selected is just outside of the corporation line and seems to meet with the favor of all parties interested.

"The land has been purchased for the new site, and arrangements have been made with the contractor for the work, by which the change of location may be effected.

"I have been directed by the village council to lay the new plan and change of location before your honorable body, and ask for the approval of the change of location.

"Two drawings are submitted herewith. A map showing the sewerage system now under construction, together with the old and new locations of the sewage purification works, and a general plan of the works as re-arranged.

The new plan submitted is exactly the same as the plan formerly approved by your honorable body as regards areas, depths and material of septic tanks, contact beds, and filters; the only change being the re-arrangement of these due to the change of location.

"A tract of three acres has been purchased by the village for the new location.

"The new location places the proposed works about 600 feet from center to center from their former location.

"I ask your honorable body in the name of the village council of Westerville, for the approval of the plan as presented, including the change of location."

The Board voted to approve the change of location for the sewage disposal works for Westerville, as proposed, and notice of this action was sent to the consulting engineer, Mr. Force, June 30, 1902.

REPORT ON PROPOSED SEWERAGE AND SEWAGE DISPOSAL FOR WYOMING.

At a meeting of the Board held October 15, 1902, Messrs. Riggs and Sherman, consulting engineers, presented plans for a sewerage system with disposal works for the village of Wyoming. They asked for the approval of the Board of the following points:

"1st. The approval of the separate system of sewerage.

"2d. The disposal of all sanitary sewage originating in the territory to the east of Springfield Avenue, and all property fronting on Springfield Avenue, by means of septic tank and sand contact beds, with regulating device as shown at the points indicated, or a point within 1,000 or 2,000 feet of the point indicated.

"3d. The disposal of house sewage by means of small catch basins or septic tank and further purification of the effluent by small sand filters and sub-surface irrigation where feasible on the large residence

properties on Oliver, Glenway, Riley, Simms and Mt. Pleasant avenues, and other streets west of Springfield Avenue.

The Board voted to approve the plans for sewers and sewage disposal for the village of Wyoming, and Messrs. Riggs and Sherman, consulting engineers, were notified October 20, 1902.

MISCELLANEOUS.

REPORT OF AN INVESTIGATION OF AN ALLEGED NUIS-
ANCE AT ATHENS.

A request was received from the board of health of Athens to investigate an alleged nuisance caused by sewage from the State Hospital.

The investigation was made by the secretary, March 12, 1902, who reported as follows:

"Athens, a city of about 4,000 inhabitants, is enclosed on three sides by the Hocking River, which here makes a grand bend. This stream, with head waters in Fairfield and Perry counties, has a watershed of about 919 square miles above Athens. It carries a good flow of water except during the summer and early fall, when the stream becomes quite small. There is at all times, however, flowing water at Athens.

"There are two dams in the river at Athens—one above and one below the city. Both are used for mill power. The lower dam is eight and one-half feet high, and sets the water back for a considerable distance.

"The city of Athens is largely built upon a series of beautiful hills. Skirting the hills at the lower dam and above are flat lands, almost swampy, which receive much of the surface washings of the city. On account of the lower dam these low lands cannot be thoroughly drained, and usually hold pools of stagnant water.

"Athens has been making most commendable improvements along sanitary lines. It now has an excellent public water supply, a good system of sanitary sewerage, and has paved most of the streets. There are three sewer outlets: One, an old private sewer, above the lower dam. This is a short sewer with not more than twelve house connections. The two other outlets—discharging practically all of the sewage—are, one a thousand and the other 1,500 feet, or thereabouts, below the lower dam.

"Several hundred yards above this dam is the outlet sewer from the State Hospital for Insane, an institution with a population of about

1,200 persons. The hospital is a mile or more from this point. The retention and the subsequent decomposition of the hospital sewage above the dam is the cause of complaint. At the time of the investigation, the river being swollen by recent rains, there was no sign of sewage pollution. The testimony was unanimous, however, as to the existence each summer of a decided nuisance due to the stench of foul sewage. There are a considerable number of houses on the bottoms that are specially subjected to this nuisance. The bad odors are at times carried to the houses on the hills above, where many of the best residences of the city may be found. The Ohio University is upon one of these hills, and complaint is made that their buildings are at times pervaded by these foul smells. These conditions have existed for years, and have been the cause of frequent complaint.

"Three different remedies present themselves. First is to purify the hospital sewage before admitting it to the river. The conditions are favorable as regards elevations, but the soil in the vicinity is unfavorable for purifying the sewage upon land without preliminary treatment. The plan recently adopted by several Ohio cities, of septic tanks with artificial filters, would doubtless give good results.

"The second plan is to carry the hospital sewage to the river below the dam. This would probably require the rebuilding of a large part of the present sewer.

"The third plan is to remove the lower dam, allowing the sewage from the hospital to flow freely away.

"When Athens introduced sewerage, about 1894, it was feared that the river during the dry season would not afford sufficient water to satisfactorily dispose of the sewage by dilution. This fear has proven to have been unfounded. The sewage from Athens, so far as could be learned, has at no time created a nuisance or noticeable pollution of the river. It seems highly probable, therefore, that if the hospital sewage is taken to the river below the dam or if the dam is removed, the nuisance complained of will be abated.

"As the increasing pollution of the Hocking River, with probable diminished minimum flow of the stream, may require, eventually, purification of the sewage of both Athens and the State Hospital, sewage purification works for the latter would insure a permanent cure of the evil that has caused the present complaint. Some measures should be adopted to relieve present conditions."

A copy of this report was presented to the board of health of Athens. Subsequently a delegation of citizens from Athens appeared before the finance committee of the house of representatives, and urged that an appropriation be made to pay for the removing of this mill dam. No action, however, was taken by the General Assembly.

REPORT OF AN INVESTIGATION OF A NUISANCE IN
BEAVER CREEK TOWNSHIP, GREENE COUNTY.

Complaint having been received from the board of health of Beaver Creek Township, Greene County, at Alpha, in regard to the pollution of the Little Miami River by a distillery at Trebein's Station, the engineer, Mr. Flynn, was directed to investigate the complaint. He visited the village July 18, 1902, and reported as follows:

"The nuisance complained of results from the discharge of the waste from a distillery into the Little Miami River through a short mill race into which the stuff is first sent. Owing to the recent high water the pollution is not as evident as it had been according to the neighboring residents, but enough was seen to show that the condition of the stream could easily be much worse and that a serious pollution was being produced during the lower stages of the water. Owing to the necessity of making repairs the distillery was about to shut down and at the time of inspection only a small stream of waste was entering the river. It was further stated that the distillery intended to start up in September with an increased capacity, but that not so much of the grains would be sent to the stream as they intended to dry more of this waste product. No stock is fed at the distillery but the grains are either hauled away by the farmers, dried and shipped, or thrown into the stream."

The township health authorities were advised of the results of the investigation and as the owners of the distillery represented that they were going to shut down, and before starting up would make some changes which would greatly diminish, if not prevent the nuisance, they were counseled to await these results before taking action in the matter.

REPORT OF AN INVESTIGATION OF TYPHOID FEVER AT
BERWICK.

The State Board of Health was asked to investigate the cause of an outbreak of typhoid fever in the village of Berwick, and on September 26th, the bacteriologist and chemist, Mr. Horton, visited this village. He made the following report:

"The small village of Berwick is located in Seneca Township, Seneca County, and at the junction of the Big Four and T. & O. C. railroads. There is a population of about 140.

"Collecting the usual information it was learned that there had been in this small community fourteen cases of typhoid fever during the late summer and early fall of 1901, and also nine cases during July-Septem-

ber, 1902. In addition to the numbers stated there were several other cases which were only reported as "suspicious" and were therefore not included in the lists given below. Attention is called to the possibility of some of these being mild cases, yet capable of disseminating typhoid bacilli.

1901 EPIDEMIC.

No. of case.	Physician's first visit	Source of water.	Source of milk.
1	Aug. 15	Nick well	Not learned
2	Aug. 20	Public well	J. B. Serin
3	Aug. 22	Public well	Porter
4	Aug. 22	Public well	J. B. Serin
5	Aug. 22	J. B. Serin	J. B. Serin
6	Aug. 22	Public & Serin	J. B. Serin
7	Aug. 23	J. B. Serin	none
8	Aug. 23	J. B. Serin	none
9	Aug. 23	J. B. Serin	none
10	Aug. 23	J. B. Serin	none
11	Sept. 22 ...	Nick	none
12	Sept. 30 ...	J. B. Serin	Porter
13	Oct. 18	Public	Various sources
14	Oct. 23	J. B. Serin	Porter

"With four cases using milk from one source, three from another, one from various sources, one unreported, and five reported as not using any milk, it is evident this was not a milk infection.

"Considering the water supply, it is to be noted that the first ten cases came down within a short period of time, pointing to a particular infection. Of this group of ten cases, six were users of the Serin well water, two others were near neighbors (one of them procuring milk at Serins), and still another was a relative of Mr. Serin. Of the four cases not included in the first outbreak, two were users of the Serin water and a third had opportunity for infection from an earlier case in the house. Thus it was seen that eight of the cases were users of the Serin water and three others may have been.

"A short time prior to the outbreak of the first cases, Mr. Serin is reported to have had bowel trouble although it was not considered of a typhoid nature.

"No examination of this well was made at the time as our attention was not called to the matter, but a sample taken September 26, 1902, gave the findings shown under No. 2,545, given later in the table of analyses. These findings are not those of a satisfactory water from a dug well, but do show pollution to such an extent that the well should be closed, as it must be considered a source of danger.

1902 EPIDEMIC

No. of case.	Physician's first visit	Source of water.	Source of milk.
a	July 13	Public & Serin	Serin & Porter
b	July 23	Public & Serin	Serin & Porter
c	July 27	School and away	Nick
d	July 30	Public	Serin
e	Aug. 20	Public	Manging
f	Aug. 20	Public	Detray
g	Aug. 20	Public	Detray
h	Sept. 16....	Public	Serin
i	Sept. 19....	Public	Detray

"The data give no suspicion of a milk infection.

WATER SUPPLY.

"It is seen from the preceding table that six of the nine cases used only water from the public well, two used water from the public well and also the J. B. Serin well, while the remaining case used school water when at home, although away more or less of the time.

"Samples of water were taken from the school and public wells and also from the Riley well, the latter being at some distance from the location of the typhoid. Examination of these samples gave the following results:

RESULTS OF EXAMINATION OF WATER FROM BERWICK.

(Parts Per Million.)

Source of sample.	School well.	Public well.	J. B. Serin well.	Riley well.
Number of sample	2543	2544	2545	2546
Color	8.	15.	8.	11.
Turbidity	24.	24.	trace	trace
Sediment	slight	slight	trace	trace
Odor	none	none	decay. veg.	none
Oxygen required	1.43	1.44	2.36	3.36
N. as ammonia free ....	.202	.232	.164	.060
N. as ammonia albuminoid	.072	.054	.094	.140
Nitrogen as nitrates	none	none	3.90	21.00
Nitrogen as nitrites ....	.008	.004	.022	.030
Chlorine	6.2	6.9	30.8	93.1
Alkalinity	154.	159.	211.	
Total solids	1062.	1005.	1049.	
Bacteria per c c*.....	650.	225.	760.	1800.
Intestinal bacteria	no.	yes.	yes.	no.

* Mostly one species.

"The results for the school well (No. 2543) indicate a usable drinking water, but as there is an indication of incomplete purification, steps should at once be taken to keep this water free from pollution by exercising great care in receiving and removing the material of the neighboring privies. As this water appears to be the safest water for drinking purposes in the village, and as it is reported that the amount of water is limited, it is advisable for all concerned to avoid wastage of this water and not use it for washing buggies and other practices.

"While the analysis of the public well (No. 2,544) does not show gross pollution of this water at the time of sampling, yet it does show pollution, which is especially evidenced by the presence of intestinal bacteria in as small amounts as two c c. This should not be the case in so deep a well (137 feet) and a drilled one. In looking for an avenue for infection of this well the following information was obtained: The well is located on a street corner some 12 or 14 feet from the place where surface drains from three directions unite to flow in the fourth direction. The well is in the angle between the drains from the west and south, and only six or eight feet from either drain. There have been cases of typhoid in all directions from the well. Material from privies is not brought directly to the drain so far as learned, but stools from patients had been "buried" on neighboring ground. About six feet from the public well and partially between it and one of the drains there was formerly a dug well 60 feet deep. Three or four years ago the dug well was filled with loads of dirt and rubbish from the various homes of the village, and lastly with dirt from the ditch below the union of the drains. In addition to the undesirable character of this filling itself there is to be considered its offering of a more ready passage for surface pollution to the deeper layers as the dug well extended to within a few feet of the rock. The evidence shows this well is polluted, is a source of danger, and should be closed.

"The investigation leads to the conclusion that the epidemic of 1901 was chiefly due to the water from the J. B. Serin well, and that of 1902 to the water of the public well.

"There is no evidence that the Riley well has caused any sickness, but the analysis shows it is receiving pollution from present sources, and all that is needed to make it a source of danger is the presence of typhoid material in place of the ordinary pollution. It should be abandoned.

"In closing it ought to be said that typhoid has now occurred in most portions of the village, and, as rigid disinfection of the excreta has certainly not occurred in all cases, it is evident that new wells in the infected territory have no assurance of being free from pollution.

"It is imperative that the stools and urine from all typhoid patients be carefully disinfected."

A copy of this report was sent to the health authorities of Seneca Township, Seneca County, and they were advised that the public, Serin and Riley wells should be closed; that every possible precaution ought to be taken to protect remaining wells from privy vault contamination; and that in cases of typhoid fever all excreta should be disinfected in the manner recommended by the State Board of Health.

They were also advised that on account of the pollution of so many wells in Berwick, the trustees should drill a well more remote from the public well, and that in no case should they put down a dug well.

REPORT ON A NUISANCE AT BLUFFTON.

The health officer of Bluffton, Dr. J. J. Sutter, asked the Board's assistance in securing the abatement of certain nuisances at that place. Accordingly, the engineer, Mr. Flynn, was sent to Bluffton, July 10, 1902, and in company with the health officer made an investigation.

He reported as follows:

"Bluffton has had a public water supply since 1896 and this water is now in use in over 200 houses or by more than half of the total population. In approximately 20 houses water closets and bath tubs have been introduced, the drainage from which goes direct to both Big and Little Reilley creeks, to an old storm drain, or to cesspools which drain to the above mentioned places. The sewage sent to Big Reilley Creek has as yet caused no complaint on account of the larger flow of the stream, no doubt. The sewage which is sent to the old storm water drain and to Little Reilley Creek, into which the storm sewer empties, has caused a noticeable nuisance, the cause of much complaint. The most serious trouble comes from the backing up of the water in this storm sewer during heavy rains and the flooding of the cellars which are drained to it. This flooding of cellars would be objectionable even if the storm sewer carried only surface water, but it is more so with the sewage polluted water. The drain is constructed of limestone slabs and is poor in both alignment and grade. At a number of places over the village the cellars are full of water and at several points the streets are not properly drained.

"With the conditions as found it seems absolutely essential that if a proper sanitary condition is to be maintained the village should have a few lines of properly constructed drains for storm water and cellar drainage and a rather complete system of sanitary sewers for house drainage. The present inadequate methods of caring for both storm and

house drainage will never be satisfactory and will always be productive of trouble and complaint.

"In regard to the nuisance from the hitching of a horse near a porch and the throwing of waste, bandages, cotton, etc., near a window, the nuisance does exist, as stated in Dr. Sutters letter. No doubt the nuisance is very annoying at times and should be abated, but nothing detrimental to health was observed."

July 17, 1902, a copy of this report was sent to the health officer of Bluffton with the Board's endorsement.

REPORT OF AN INVESTIGATION OF THE SANITARY CONDITION OF BULAH PARK, COLLINWOOD TOWNSHIP, CUYAHOGA COUNTY.

A petition was received from residents of Bulah Park, Cuyahoga County, in regard to the unsanitary condition of the park. Accordingly Dr. Wm. T. Miller, a member of the Board, was appointed a committee to make an investigation. Dr. Miller visited Bulah Park on August 22, 1902, and reported as follows:

"The association occupies about 3 acres of land on the shore of the lake 20 feet or more above the water level intersected by a deep ravine. There are from fifty to sixty cottages on the grounds, with a population of from 500 to 600. The transient population varies from 300 to 1000.

"The water supply is from Collinwood, from the city supply. The garbage is cared for by the Collinwood authorities; at occasional intervals by a private collector. Fifteen cottages on the east side of the ravine have sewer connections which communicate with a vault on the level of the shore with an overflow pipe which discharges into the lake a few feet from the shore. This is a favorite place for the bathers to congregate.

"There are two lavatories for public accommodation on the west bank of the ravine. They are large brick vaults which were built on loose earth so they have cracked and the sewage oozes through to a semi-stagnant pool in the bottom of the ravine which communicates with the lake during high water. The house sewage is taken in buckets to these lavatories and emptied. The ravine is used as a refuse ground for all sorts of garbage which together with the lavatories creates a veritable 'Valley of Gehenna.'

"I would recommend:

- 1st. That new public lavatories be built with flush tanks and sewer connections.
- 2nd. That a sanitary sewerage system be established which shall have

connection with every cottage; with suitable sewage disposal by the septic tank or some other method of purification.

3rd. That greater care be exercised in the collection of garbage."

A copy of this report, with the Board's endorsement, was sent to the authorities of Bulah Park, September 18, 1902, (The President of the Christian Alliance—Mr. B. H. Collinwood), and they were urged to make the necessary changes to place the grounds in a proper sanitary condition at the earliest convenience.

REPORT OF AN INVESTIGATION OF SCARLET FEVER AT CANNELVILLE—DILLON P. O.

The authorities of the village of Cannelville (Dillon P. O.) requested Dr. Crossland, a member of the Board, to visit that place and advise with them in regard to an outbreak of scarlet fever. Dr. Crossland visited Cannelville, November 22, 1901, and made the following report:

"Cannelville is a small village of probably three hundred people, located in the southwestern part of Muskingum County, thirteen miles from Zanesville. It is a prosperous mining town.

"Scarlet fever had been prevailing in the village and surrounding township for two or three months. The disease had been prevalent in the mild form but with a tendency more recently to a severe type of the disease. There had been two or three deaths. I found one child in a critical condition.

"The mayor of the village had arranged for a meeting of the village council, and the board of health. I attended this meeting, which was also attended by the village and township physicians, and a number of the leading citizens of the village. I found that council had sometime previously appointed a board of health. The members who had been appointed on the board of health had declined to accept the appointment. Their chief reason was that no funds were in sight with which to defray any expense the board might incur. I obtained the consent of the majority of the members who had been appointed on the board to accept the appointment, council declaring their intention to promptly provide funds with which the board might meet its expenses. The only reason why council had not already provided funds seemed to be because of lack of knowledge of the *modus operandi*, and not through any disinclination on their part to meet this requirement. The board also assured me that they would meet at their earliest convenience, probably on the evening of November 23rd, to organize. The village and township

physicians informed me that there were probably fifteen cases of the disease in the village at that time. Most of these were of a very mild type. Their village school had been closed for two weeks, sometime back; was now in session, with some pupils attending the school in the stage of desquamation. I advised the board as to the manner of organization and the methods of the board of health action. I found a very harmonious relation existing between the village officials and the different members of the board and the citizens generally. The executive officer of our Board has probably been notified before this of the organization of the board."

A copy of this report was sent to the health authorities, May 3, 1902.

REPORT ON PROPOSED GARBAGE DISPOSAL FOR CANTON.

The council of the city of Canton submitted two sets of plans for a garbage disposal plant for that city, and requested the Board to approve or disapprove the same, in accordance with the provisions of Section 2,143 of the Revised Statutes.

They were informed that it was not the function of the State Board of Health to select plans for garbage disposal; that a definite plan should be adopted by them and then presented to the Board for its approval.

Later a communication was received from the city clerk of Canton, stating that council had approved plans submitted by the American Incinerating Company and requesting the Board to approve said plans. It was represented that this company had a plant in operation in the city of Toledo, and the matter was referred to a committee, consisting of Drs. Warner and Chapman, to inspect the plant and report upon its merits. They submitted the following report:

"The committee visited the site of the works of said company, at Toledo, on May 28, 1902. The plant was not in operation and appeared to have been unused for a considerable time. Facilities for observing the mechanism, methods and capacity of the plant were almost entirely lacking.

"With the exception of seeing the exterior of this plant, all the other information that has been afforded is contained in the following letter:

"CLEVELAND, OHIO, June 18, 1902.

"*Dr. W. C. Chapman, Toledo, Ohio.*

"DEAR SIR:—I have word from Toledo that your honorable Board wishes to inspect our crematory at Toledo on the 27th of this month

and our people at Toledo had hopes that arrangements could be made to give you the demonstration, but they were not aware that we discontinued our electric service some time ago and were making arrangements to install a small steam plant for power, having in view the idea of demonstrating the efficiency of our system under stationary boilers. At the same time this will take some little time as we are very busy arranging the details of the furnace here, but when ready at Toledo we will be very glad to have your honorable board inspect ours. You will understand that we mean by arranging, that we have discontinued our electric service, and that the power heretofore used was a motor. Our wish to change was to show a self contained plant, hence the need of an engine. We are very sorry that your board could not take the matter up before this as we had the pole line removed a little less than a month ago.

"Yours very truly,

(Signed) "AMERICAN INCINERATING CO."

"Frank Gorman."

"In default of other information furnished prior to, or at this meeting, your committee believes that it is not justified in approving the same; also that it is not entirely warranted in disapproving. It is, therefore, of the opinion that the plans should be returned to the City Council of Canton without action."

This report was presented to the Board at its June meeting and it was voted to take the action recommended by the committee.

Notice of this action was sent to the city clerk, Mr. C. C. Lloyd, with a copy of the report, and the plans returned, June 30, 1902.

On July 8th, the city clerk of Canton submitted plans and specifications of the Dixon Garbage Company for the erection of a garbage disposal plant for that city, with the following resolutions:

"Whereas, by resolution of this council heretofore had and adopted, the plans and specifications of the American Incinerating Company, for the construction of a garbage plant, were as provided by law, duly submitted to the State Board of Health for approval before attempting to contract therefor, and

"Whereas, said Board of Health upon consideration thereof has refused to approve said plans and has so notified the clerk of the city of Canton, and

"Whereas, the Dixon Garbage Crematory Company, a bidder for the erection and construction of said plant, has also submitted its plans and specifications as by law required, and which are now on file with its bid in the office of the clerk of said city. Now, therefore, for the purpose of submitting said plans and specifications of said, The Dixon Garbage Crematory Company, to the State Board of Health for its ap-

proval before attempting to enter into any contract with said, The Dixon Garbage Crematory Company regarding the same,

"Resolved, that the clerk of said city of Canton be and he is hereby authorized and instructed to forward to said State Board of Health said plans and specifications together with a copy of this resolution, with the request that said State Board of Health pass upon the same at the earliest possible moment and either approve or disapprove said plans and specifications. Adopted."

These plans were approved by the Board and notice of the action was sent to the city clerk, July 25, 1902.

REPORT OF AN INVESTIGATION OF SEWAGE DISPOSAL AT CLYDE.

A petition was received from residents of Clyde, asking the Board to investigate a nuisance there, caused by the pollution of a stream, in part due to refuse from a large kraut works and in part to the effluent from the sewage disposal works. The Engineer, Mr. Flynn, was sent to Clyde, August 18, 1902, and in company with the mayor and other village officials inspected the sewage disposal works. He reported as follows:

"The plan includes six intermittent filtration beds, with a total area of three and one-fourth acres, and the necessary gate chambers, diverting channels, etc. The beds consist of about three feet of very fine sandy loam underdrained every twenty feet. At the time of inspection and at a number of previous inspections the beds were flooded with stagnant sewage which had been standing on them for days, if not for weeks. At no time was a single bed found in proper condition for filtration. Occasionally a bed would become partially dried out so that some of the surface would be visible. It was stated that the beds were carefully raked over once each year and the collected sludge removed to a field adjoining. It was further stated that the gates were changed and the beds cared for by the man who has charge of the streets.

"It need scarcely be stated that this fine sandy loam will not handle any amount of sewage without the most careful and constant attention, by which is meant more than one cleaning per year. With the filtering material in use it would be necessary, in order to secure good results, to carefully rake over the beds after each application of sewage. Each bed should be dosed with sewage, allowed to dry off, and then be gone over to free it from the collected sludge, before the next dose of sewage

is applied. The quantity of sewage should be made just as great as will filter through before the bed is needed for the next application.

"As a preliminary, the six beds should be carefully dried out and cleaned off, then operated carefully to determine their capacity, then if the area is not sufficient there will be some reliable guide for the construction of the new beds. Under the present management of the beds it is impossible to say whether the area is sufficient or not.

"It is stated that there are two and three-fourths miles of combined sewers in use, to which have been made some one hundred connections. The sewage was formerly discharged direct to Raccoon Creek but now the dry flow is diverted to the sewage disposal works. From the number of connections and from the amount of water consumed in the village it may be estimated that the dry flow is not above 75,000 gallons per day, which is a very liberal allowance. This may be increased by infiltration water and is of course increased by the storm flow, to the full capacity of the interceptor, which capacity is unknown, but is very easily determined.

"During the winter the sewage is sent direct to Raccoon Creek through a by-pass provided for that purpose. With proper ridging and care at least some of this sewage could be filtered.

"The effluent at the time of inspection was clear and nearly odorless and deposited but little sediment in the outfall ditch. At previous inspections the effluent was not so unobjectionable, but on the contrary, was quite foul and was causing considerable pollution.

"If properly operated there would be no trouble caused by the effluent from this plant.

"It would certainly seem advisable before further construction is considered, to find out by proper attention and care just what the present beds could do. Now there is no way of knowing the amount of sewage to care for or the capacity of the beds which must handle it."

A report was made to the petitioners and to the authorities of Clyde, and the latter were advised to put their filtration plant in order and give it proper attention.

REPORT OF AN INVESTIGATION OF TYPHOID FEVER AT CONNEAUT.

The Board's attention having been called to a very considerable outbreak of typhoid fever at Conneaut an investigation was ordered and this was made by Mr. Benjamin Flynn, the Engineer of the Board.

It should be recalled that sometime previous to this the Secretary of the Board investigated an outbreak of typhoid fever at Conneaut and

concluded that this had been caused by the pollution of the public water supply, which was obtained at that time from Lake Erie without filtration. Upon the recommendation of the Board filters were introduced at Conneaut, of the mechanical type, and this second outbreak of typhoid fever there was accordingly of more than usual interest. The report shows conclusively the great necessity of the careful operation of mechanical filters and the use of a sufficient amount of the coagulant at all times.

Following is the report of Mr. Flynn.

"On March 18 and 19, 1902, Conneaut was visited and the prevailing epidemic of typhoid fever investigated with special reference to the source of the infection.

"Detailed reports of all the cases since January 1, 1902, were secured from the attending physicians together with all information possible in regard to the water and milk supply.

"Up to and including March 18th, there had occurred sixty-five cases of fever with three deaths, but with the possibility of at least some of the more recent severe cases resulting fatally. The information secured concerning these cases is given in the following list and tables:

No.	Date of illness.	Age.	Sex.	Character of case.	Water supply.
1	Jan. 1	14	Male	Mild	City water
2	Jan. 1	54	Male	Severe	City water
3	Jan. 30	11	Male	Died	City water
4	Feb. 1	25	Male	Mild	Well water
5	Feb. 7	14	Female	Mild	Well water and city water
6	Feb. 11	19	Female	Severe	City water
7	Feb. 12	45	Female	Mild	City water
8	Feb. 15	16	Male	Mild	City water
9	Feb. 18	27	Male	Mild	City water and well water
10	Feb. 18	45	Male	Mild	City water
11	Feb. 20	49	Male	Died	City water
12	Feb. 20	3	Female	Medium	City water
13	Feb. 20	58	Male	Mild	City water
14	Feb. 20	19	Male	Severe	City water
15	Feb. 20	30	Female	Severe	City water*
16	Feb. 25	30	Male	Severe	City water
17	Feb. 25	44	Male	Mild	City water
18	Feb. 25	16	Female	Mild	City water
19	Feb. 26	30	Male	Severe	City water
20	Feb. 26	17	Female	Died	City water
21	Feb. 26	30	Female	Severe	City water
22	Feb. 26	48	Female	Medium	City water
23	Feb. 26	35	Female	Mild	City water
24	Feb. 26	26	Male	Mild	City water
25	Feb. 26	27	Female	Severe	City water
26	Feb. 28	55	Male	Severe	City water and other water

No.	Date of illness.	Age.	Sex.	Character of case.	Water supply.
27	Mch. 1	16	Female	Severe	City water
28	Mch. 1	11	Male	Severe	City water
29	Mch. 2	19	Male	Mild	City water
30	Mch. 2	25	Female	Severe	City water
31	Mch. 3	29	Female	Mild	City water
32	Mch. 3	40	Male	Severe	City water
33	Mch. 4	38	Male	Severe	City water
					with other wa- ter
34	Mch. 4	13	Male	Medium	City water
35	Mch. 4	48	Male	Mild	City water
36	Mch. 4	55	Female	Severe	City water
37	Mch. 4	55	Male	Mild	City water
38	Mch. 4	13	Male	Mild	City water
39	Mch. 4	42	Female	Very severe	City water
40	Mch. 4	43	Male	.....	City water
41	Mch. 5	15	Male	Medium	City water
42	Mch. 5	22	Male	.....	Came from Cleveland with fever
43	Mch. 5	36	Female	Mild	City water
44	Mch. 5	28	Female	Mild	City water
45	Mch. 5	14	Female	Mild	City water
46	Mch. 6	19	Female	.....	City water
47	Mch. 7	30	Male	Very severe	City water
					and well water
					Removed to country
48	Mch. 7	11	Male	Mild	City water
49	Mch. 7	19	Male	.....	City water
50	Mch. 8	30	Female	Medium	City water
					Removed to Kingsville
51	Mch. 8	5	Female	Mild	City water
52	Mch. 8	20	Male	Medium	City water
53	Mch. 9	9	Female	Severe	City water
54	Mch. 10	34	Female	Severe	City water
55	Mch. 10	23	Female	Mild	City water†
56	Mch. 11	17	Female	Severe	City water
57	Mch. 11	15	Female	Severe	City water
58	Mch. 12	21	Male	Medium	City water
59	Mch. 12	40	Female	Mild	City water
60	Mch. 12	24	Female	Medium	City water
61	Mch. 14	21	Female	Medium	City water
62	Mch. 15	30	Male	Mild	City water
63	Mch. 17	23	Male	Severe	City water
64	Mch. 16	3	Female	Severe	City water
65	.....	....	Male	.....	City water

*Boiled same for two months.

†Removed to suburb.

NUMBER OF CASES BY DATES.

Date.	No.	Date.	No.	Date.	No.	Date.	No.
Jan. 1	2	Feb. 18	2	Mch. 3	2	Mch. 10	2
Jan. 30	1	Feb. 20	5	Mch. 4	8	Mch. 11	2
Feb. 1	1	Feb. 25	3	Mch. 5	4	Mch. 12	3
Feb. 7	1	Feb. 26	7	Mch. 6	1	Mch. 14	1
Feb. 11	1	Feb. 28	1	Mch. 7	3	Mch. 15	1
Feb. 12	1	Mch. 1	2	Mch. 8	3	Mch. 17	1
Feb. 13	1	Mch. 2	2	Mch. 2	1	Mch. 18	1

NUMBER OF CASES BY AGES.

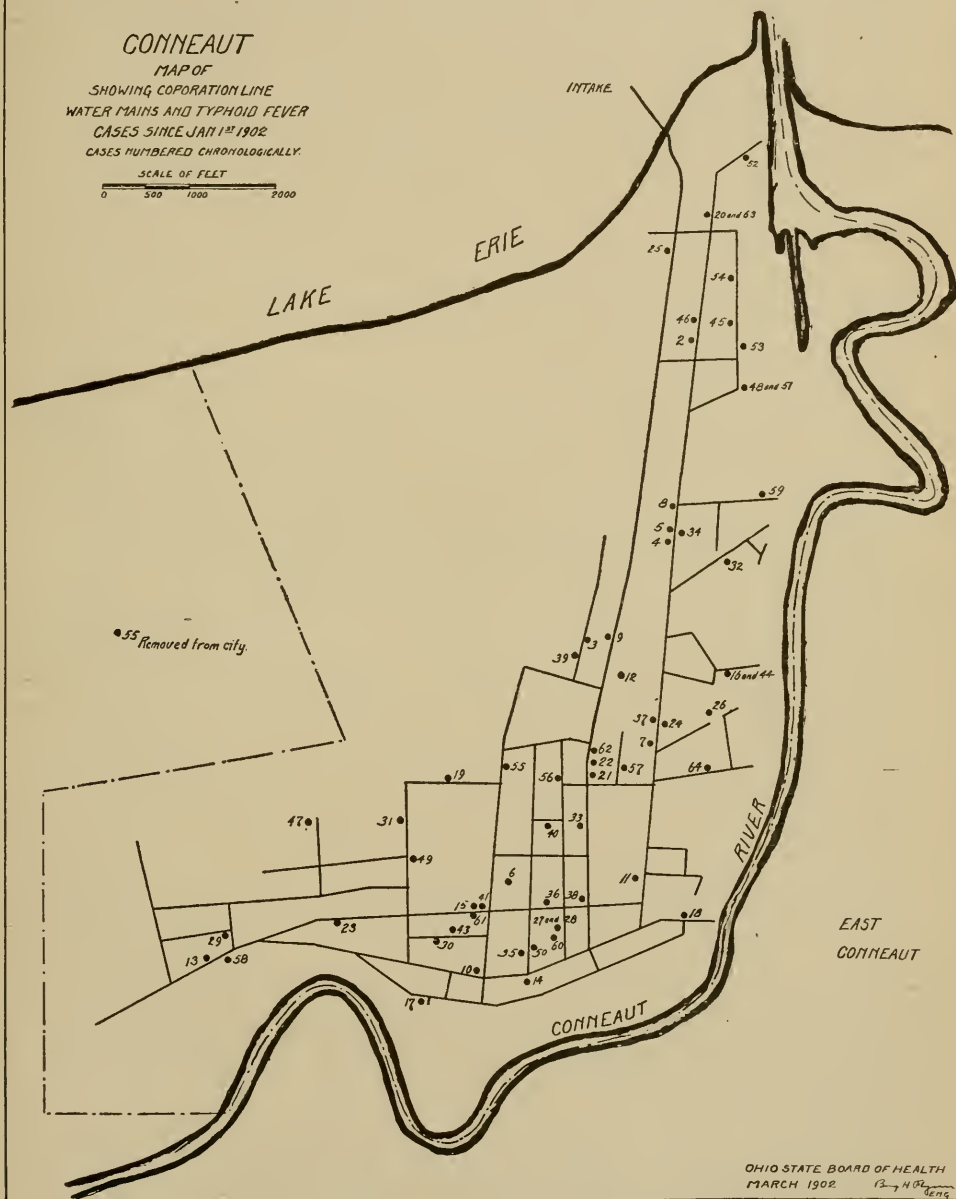
1-5	6-10	11-15	16-20	21-30	31-40	41-50	50-60
3	1	10	11	19	6	8	5

"From the nature of the epidemic and from the investigation of several of the physicians it was soon seen that the milk supply was not the cause of the trouble. One physician reported nine different milkmen for his ten cases of fever. The almost total lack of cases among the very small children would also point against the theory of the milk being the source of the infection.

"There is geographically shown in the following chart, the number of cases per day and per week from the beginning of the year:

CONNEAUT
 MAP OF
 SHOWING COPORATION LINE
 WATER MAINS AND TYPHOID FEVER
 CASES SINCE JAN 1st 1902
 CASES NUMBERED CHRONOLOGICALLY.

SCALE OF FEET
 0 500 1000 2000



"From this it is seen that the cases began to increase along the 1st of February with the height of the epidemic during the week ending March 4th. Of the sixty-five cases one was undoubtedly brought from Cleveland, leaving sixty-four to be locally accounted for. Of the sixty-four all used more or less of the city water, and fifty-eight used the same practically entirely, leaving only six cases where any other water, except the public supply, was used regularly. In two of these six cases it was possible to secure samples of the well waters used. Where city water was used at the house, or school, store, office or shop, it was considered that the case was using city water.

"The restriction of the cases to the territory reached by the public water supply is shown graphically by the accompanying map.

"From the facts as stated it must be concluded that the public water supply was the source of the present epidemic of typhoid fever. The cause of this may not be so hard to determine when the conditions are noted. Conneaut is supplied with water secured from Lake Erie at a point 570 feet from the shore line and in 14 feet of water. The lake is here polluted with the sewage laden waters of Conneaut River, which enter the lake some 1,500 feet east of the intake, and by the washings from the filthy yards, streets, and outhouses of the northern part of Conneaut, which surface drainage enters the lake just west of the pumping station. These conditions demanded that the lake water be purified before using the same. For this purpose a system of mechanical filtration was installed September 1900. Upon the successful operation of these filters depends the purity of the public water supply, and in this system of mechanical filtration successful operation depends largely upon the use of a proper amount of coagulant, in this case sulphate of aluminum.

"From July 29, 1901, until March 18, 1902, for which the term records were available, there was used on an average only one-fourth grain of alum per gallon of water filtered. From the statement of the engineer, the amount of alum is varied with the turbidity of the water, a clear effluent being the only gage of successful filtration.

"During the winter of 1901-2 the ice extended from the lake shore out over the intake and harbor for a number of miles. Beneath this ice layer the lake waters were held quietly imprisoned, resulting in a very clear water being brought to the filters. As a clear water was the only gage, this condition resulted in the use of the minimum amount of alum, probably less than one-fourth grain per gallon. As under the condition named the sewage from the river enters the lake without any purification by wave action being possible and when it can be spread out over the intake without being influenced by the wind, it is believed that the water sent to the filters is more seriously polluted than at any other time and demands the highest efficiency in the filters.

"This is borne out by the fact that during the latter part of February, owing to the increase in the number of typhoid fever cases, the amount of alum was increased to about 0.7 grains per gallon, resulting in better purification which checked the number of cases of fever, when the period of incubation is allowed for.

"Owing to the peculiar conditions resulting from the formation of ice over the intake and harbor, it is believed that the water at the intake demands the highest efficiency in the filters, notwithstanding the apparent purity of the same, due to its clearness.

"It would no doubt be wise to increase the amount of alum at all times owing to the opportunity for serious pollution and on account of the facts as cited above, to increase the amount much above the normal for a period beginning with the formation of the ice in the winter and extending to such a time as the ice is broken up and the lake cleared up in the spring.

"Owing to the changes in the lake water due to seasons, direction of wind, etc., it would be advisable to conduct a test of the filters under all possible conditions and determine the proper amount of coagulant to use for each case."

Samples of the water were examined by Mr. E. G. Horton, Chemist and Bacteriologist of the Board, who reported as follows:

REPORT OF EXAMINATION OF WATER FROM CONNEAUT.

(Parts Per Million.)

Source of sample	Hydrant. Mar. 11	Subsided. water	Flume. effluent	Hydrant. Mar. 19
Number of sample	2121	2132	2133	2136
Color	14.	5.		10.
Turbidity	mere trace	111. (alum)		trace
Sediment	trace	decided (alum)		none
Odor	none	faint		faint
Oxygen required	1.54	3.51		1.45
N. as ammonia free.....	.074	.056		.050
N. as ammonia albuminoid	.062	.180		.099
Nitrogen as nitrates .....	.32	.28	.28	.32
Nitrogen as nitrites ...	none	.002	trace	none
Chlorine	4.6	5.4	5.3	5.2
Alkalinity	52.	66.	66.	60.
Incrusting constituents ..				
Total solids	137.	179.		133.
Bacteria per c c	25.	650.	200.	* 350.
Colon present	no	yes	no	yes

*Count low owing to overspreading growths.

"Sample 2,121 was received from Sanitary Policeman J. J. Helmer on the 12th, having been taken from a hydrant. The remaining

samples were received on the 20th, having been collected by Mr. B. H. Flynn. 2,132 represented the subsided water after the addition of alum and before entering the filters. 2,133 represented the effluent in the clear water flume, and 2,136 was a sample of hydrant water in the village.

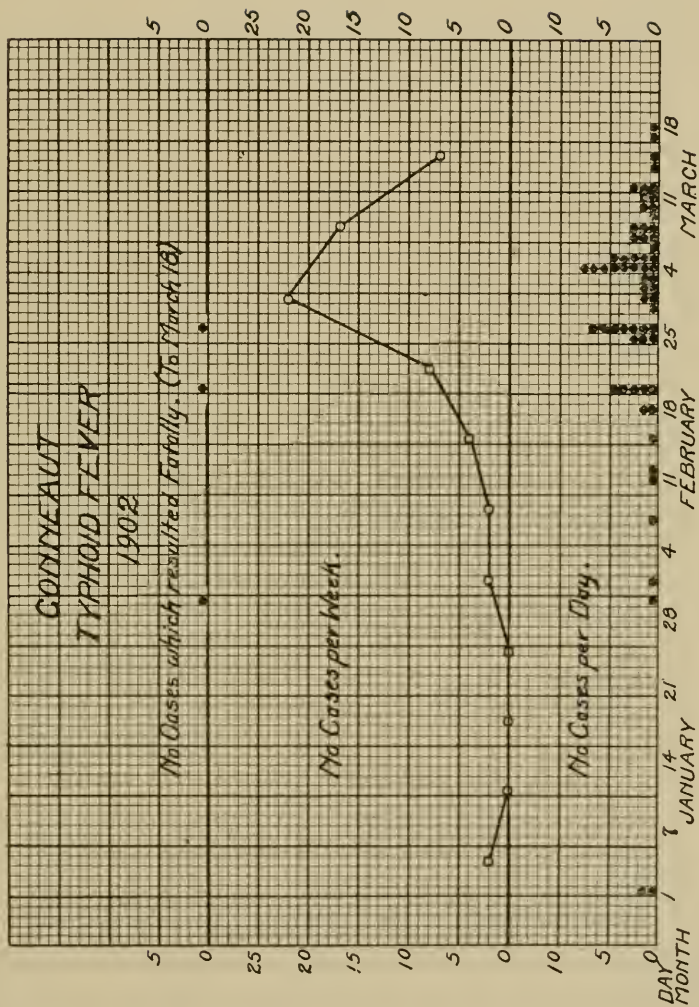
"2,132, subsided water as it enters the filters. This sample shows that the lake water at the time contained considerable organic matter and intestinal bacteria. Thus it was not a safe water to use without further treatment.

"2,133, effluent from clear water flume. No chemical sample was taken but the number of bacteria shows an unsatisfactory degree of purification, since the bacterial efficiency of the filters at the time was only about 70 per cent. based upon the findings of this sample and the preceding one. Owing to the difficulty in obtaining a true count for 2,132 (see analytical findings), the percentage of bacterial reduction is lower than it should be, but making allowance for that the filters were not doing first-class work.

"2,121 and 2,136, hydrant samples. These samples show the water had been strained through the filters, but the results are not such as may be obtained by the Jewell filters when operated properly. These samples are not as good as those obtained by us in our studies of Conneaut water in 1901. The presence of intestinal bacteria in sample 2,136 is especially indicative of danger.

"Comparing the samples of subsided water (2,132) with the samples we had last year of lake water, it is seen that the lake water being pumped at the time the present samples were collected was more polluted with sewage than usual."

A copy of this report was sent to Mr. Frederick C. Howe, Treasurer of the Conneaut Water Company. It was recommended that they should have a proper mechanism which would determine accurately the amount of alum going into the water at all times and also the minimum amount of alum that could be used with the assurance of proper results.



REPORT OF AN INSPECTION OF THE FRANKLIN STREET
SCHOOL AT DELPHOS, WITH NOTES ON THE GER-
MAN, JEFFERSON AND SOUTH END SCHOOLS.

At the request of the board of education, Mr. B. H. Flynn, Engineer of the Board, was sent to Delphos to make an inspection of the school buildings. He made the following report:

"April 10, 1902, the schools of Delphos were visited in company with Mr. W. T. Dolbey, clerk, and members of the board of education; especial attention being given to the Franklin Street school, of which complaint was made.

"The Franklin school is a substantial brick building, two stories in height, with four rooms on each floor, all opening into large halls. The building is fitted with the Smead system of hot air heating, ventilating and dry closets. These closets are located in the basement and were in but fair condition. They were not kept thoroughly clean and the vaults beneath contained a large amount of collected matter. It seems to be the custom to burn them out only twice a year, during the summer vacation and the Christmas holidays. The accumulation of this large amount of matter in the vaults is not only very liable to cause a nuisance when a good draft is not maintained in the ventilating stacks, but it also causes more complaint from the greater amount of smoke and smell when they are burned out. The ventilating stacks were examined and a good draft found, maintained only by the vault fires, the stack fires being lighted only when the vault fires will not maintain the draft. The warm air inlets in all the rooms had a good pressure and the suction was marked at all the four air ducts at the times they were tested. No complaint of foul odors or of bad air was made by the teachers, except on a few occasions when the windows were open and the sour smell from the stacks was blown in. In no case was this trouble reported in the winter when the windows were closed. It was claimed that on muggy mornings the odor was quite noticeable outside of the building.

While complaint against this building does not seem to be well grounded from the fact as found on this one inspection, it is entirely possible, with the system in use, for foul air to be forced into the rooms at any time when the draft in the ventilating stacks is not properly maintained. It does not seem safe at all times to depend upon the vault fires to maintain this draft, and it is not absolutely certain that the stack fires will always maintain it. Where the foul air has access to the rooms whenever the draft is not properly maintained it would be advisable to install some mechanical device, such as a fan, to maintain this draft and not depend upon the variable draft produced by the fires.

"In the German building the Smead system of ventilating and the dry closets are in use, while the rooms are warmed by means of stoves. The closets were found in but fair condition, but the vaults contained a large accumulation, not having been burned out during the year. Only the vault fires were lighted and these were not sufficient to maintain the draft. The foul air ducts in the rooms were more or less closed up, as the odor coming from them was very objectionable at times. With no warm air being forced into the rooms there is much more danger of foul air entering and special pains should be taken to maintain a constant draft in the stack. Owing to the difficulty of doing this with the fires as used it is not advisable to attempt to use the foul air ducts in the rooms and they should be effectually shut off.

"In the Jefferson Street school building the Smead closets and system of ventilating are also in use. Here, at the time of inspection, one stack had a good draft maintained by the vault fire only, while the other stack had a very poor draft, at times none, and was allowing foul odors to come out into the halls, though they were not noticed in the rooms. Under all conditions it is impossible to maintain a proper draft in the ventilating stacks by means of fires alone, and it is not advisable to attempt to use this system of ventilation, especially when it is not helped out by the draft from the warm air registers.

"The South End school building consists of a small frame dwelling house, heated by a stove and provided with out-door closets. The light is poor and the room entirely too small for the number of pupils accommodated, especially when it is necessary to depend upon doors and windows for ventilation."

This report was presented to the Board at its meeting held April 23, 1902, and approved, and a copy was sent to the board of education of Delphos, April 30, 1902.

REPORT OF AN INVESTIGATION OF A NUISANCE CAUSED BY DEFECTIVE SEWERAGE AT GALLIPOLIS.

The board of health of Gallipolis asked the State Board to send a representative there to advise them in regard to the abatement of a nuisance resulting from defective sewerage. Mr. Flynn, the Engineer, was sent to Gallipolis July 8, 1902, and in company with the health officer, Dr. F. A. Cromley, made an investigation.

He reported as follows:

"Gallipolis has a system of storm water sewers designed and constructed for the removal of storm and surface water only, and not for the removal of house wastes. This system consists of six lines of pipe

sewer leading from Third Avenue to the Ohio River with storm water inlets at the street intersections and the low points. Each sewer is about two blocks long and each has a separate outlet over the bank of the river. As the city has no sanitary sewers, many residents of the business section have desired to tap the storm sewers for house drainage claiming that all the available room for cesspools has been utilized. Not only have they desired these connections, but at least a few have secured them, usually through the subterfuge of tapping for yard drains only. These connections seem to be made entirely to the State and Court street sewers, at least these are the only ones complained of, and the condition of their outlets would bear out this supposition. The admission of this house drainage to the storm water sewers fills them with foul deposits which remain until removed by heavy rains. As the street inlets are not trapped the odor from this mass of filth is very evident near all the inlets on the two sewers named, Court and State streets.

"This nuisance is intensified by the fact that the sewer outlets are just over the bank of the river, exposing them in such a way that the wind very frequently blows up the sewer, forcing the foul air out on the streets. From all that can be learned the nuisance is serious, giving rise to many bitter complaints. The health officer states that the board of health has tried to induce the council to remedy the matter either by compelling the connections to be abandoned or to have the sewers so altered as to enable them to care for the house drainage. It is contrary to a local ordinance to tap the sewers for anything but surface drainage, but it seems to be no one's duty to enforce this law. It is also stated that the council refused to pay for the investigations necessary to determine who the offenders are. The secretary of the water works board estimated that there were 250 water closets in use, and it certainly seems proper and necessary that there should be some other method of caring for the drainage from these than the deep cesspools so common in the river towns. It is quite certain that the storm water sewers as constructed are not able to care for this drainage without causing a nuisance and that they will require quite extensive alterations before they can do so."

A copy of this report was sent to the board of health of Gallipolis with the following letter:

"COLUMBUS, OHIO, July 9, 1902.

"To the Board of Health, Gallipolis, Ohio.

"GENTLEMEN:—The Engineer has just reported upon the conditions as regards a nuisance arising from defective sewerage in your city. It would appear that the whole trouble arises from the use of storm water sewers for drainage from water closets, etc., and that the nuisance is bound to continue unless proper changes are made. It is

evident that a system of sanitary sewers is demanded to properly abate this nuisance and at the same time give your people the privilege of getting rid of water closet waste. However, no citizen has a right to create or maintain a nuisance detrimental to the health and comfort of the people at large, and the law makes it the duty of your board of health to abate such nuisances.

"While it is not within your power to compel council to construct a system of sanitary sewers, you can and should prohibit the use of these sewers already constructed for any but their original purpose; that is, for the reception of storm water only.

"I would advise your board to adopt an order, which should be adopted, recorded and published, the same as an ordinance, prohibiting the use of these storm water sewers for house drainage. This you are fully authorized to do under the provision of Section 2122 of the Revised Statutes as amended May 7, 1902. You should make the order go into effect on and after a certain date, allowing a reasonable time for these property owners to make some other arrangements, and after that time you should make an investigation and should commence prosecution against all persons found violating the order of the board. The law places this remedy in your hands and you should use it. Any expense that it may be necessary to incur in the enforcement of the order, such as the appointment of inspectors, etc., the law makes ample provision for. Council is now required to pay all necessary expenses incurred by the board of health.

"If we can be of any further assistance to you in the matter, please let me know.

"Yours truly,

"C. O. PROBST,
"Secretary."

REPORT ON THE CONDITION OF THE SLAUGHTER HOUSE OF THE OHIO HOSPITAL FOR EPILEPTICS AT GALLIPOLIS.

At the meeting of the Board held October 15, 1902, the Secretary presented a communication from Dr. Ohlmacher, Superintendent of the Ohio Hospital for Epileptics at Gallipolis, asking in the name of the board of trustees of the institution that the State Board of Health investigate the condition of the slaughter house used by the hospital though not belonging to it.

Dr. Frank Warner, a member of the Board, was appointed a committee to make this investigation. He visited the institution, inspected

the slaughter house and surroundings, and offered the following recommendations:

1. That the slaughter house in question be condemned.
2. That we recommend to the board of trustees of the Ohio Hospital for Epileptics that they construct, on their own grounds, a sanitary abattoir with cement floors and side walls of some material of the same nature.
3. That in its construction, drainage and a proper disposal of the wastes be considered.
4. That these changes be promptly made.

Dr. Warner also endorsed the report of Dr. Ohlmacher, which is given below.

REPORT OF DR. OHLMACHER.

"The building which has for the last six years been used as a slaughter house by the Ohio Hospital for Epileptics and for the same purpose for the previous three years by Gallipolis butchers, belongs to a farmer, Gilman by name, and is situated about one and one-half miles from the hospital grounds in a ravine. The hospital buys all of its live stock on foot and does all of its killing. All of the killing is done here.

"The slaughter house proper is an old broken down barn, 16x24 feet in dimensions, built with straight board sides of cast lumber. The beams are locust posts. The roof of slab shingles is in a very bad condition and freely leaks rain or snow. The windlass for raising carcasses was made from an old belfry and is very weak and insecure. The floor of the slaughter house was originally of two-inch oak, but it is now broken in a number of places, some of which have been patched by nailing pieces of pine or other wood over the openings, while some are unpatched. There are no steps to the barn. The walls are of rough board sidings, the boards of which are very foul and, on account of their roughness, cannot be kept in a clean condition. The same holds true for the floor. Against the walls all of the dressed meat must hang, except a small portion which is suspended from a weak old beam with stationary hooks, the beam being so weak as to constantly endanger the workers.

"The soil on which the slaughter house stands is of clay. There is absolutely no provision for drainage about this building, and the blood and other fluids have collected beneath the barn, the pen, and the platform for the offal wagon, soaking the soil and leaving a reeking pool of putrefying fluid beneath these structures. This pool was several inches deep under the old broken barn floor, and, on examination, indescribably foul. The offal wagon which Mr. Gilman employs to carry

this material to his pig pens was, on the morning of my visit (August 5, 1902), standing on the small platform outside the barn door and was full to the depth of four to six inches with maggot-swarming rotten offal of the slaughter of July 31st (five days previous). This, according to the statement of our butcher, is an ordinary occurrence.

"This barn is supplied with water from a well twenty feet deep, with loose brick sides, situated twenty feet from the slaughter house in a pig pen. The natural drainage is from the barn to the well. Owing to the long dry season the water from this well showed no striking bacterial contamination, about one hundred bacteria, mostly growing at incubator temperature being found in one cubic centimeter when examined August 6, 1902. There is little doubt but that this water must be dangerously contaminated when the soil about the barn and in the pig pens becomes water soaked. The well is surmounted by a windmill, out of repair and useless. Water is pumped by hand from the well through a wrought iron pipe to a barrel in the slaughter house where it is removed by buckets to cleanse the meat. This water is also drunk by the butcher and his assistants.

"The sheds and pens are in a badly dilapidated condition. None of them has a floor except a small runway to the barn where some loose boards are laid. The small closed pen in which cattle are kept over night has a dirt floor, and according to the butcher's statement, this inclosure has never been cleaned. Previous to killing, cattle are kept in the hospital pasture one-half mile from the slaughter house, but very frequently cattle and sheep are confined over night in the pen and sheds already mentioned. The scales are in an open pen, unprotected against weather or against the cattle, and according to the butcher's statement, are out of repair and entirely inaccurate. They are situated in the runway leading from the covered shed to the slaughter house and are therefore trampled upon each time the cattle are driven to the slaughterhouse. The approach to the slaughter house for the wagon used to haul the meat is a small inclosure, unpaved, and in wet weather the mud in this inclosure becomes hub deep, making it almost impossible to get the wagon loaded and away from the barn.

"The hide-house is about six feet square and about five feet high, is leaky, and entirely too small, so that the beef hides are kept during the curing process only with the greatest difficulty, while the sheep hides have been piled so high as to burn and heat, resulting in the condemnation of many."

November 18th, a letter was addressed to the board of trustees of the hospital stating that the Board had voted to confirm the report of Dr. Ohlemacher and the recommendations made by Dr. Warner for the improvement of existing conditions.

December 5, 1902, Dr. Ohlemacher reported that the Emergency Board had allowed them \$4,000 to construct a new slaughter house for the hospital.

REPORT ON THE SANITARY CONDITION OF LINWOOD PARK, VERMILION.

Complaint was made of the unsanitary condition of Linwood Park, Vermilion, Ohio, and the Board was asked to make an investigation. Accordingly the Engineer was sent there on July 15, 1902, and in company with two of the employes of the Park company made an inspection of the park. He (Mr. Flynn) reported as follows:

"The park occupies a 64-acre tract of land situated on the high ground bordering Lake Erie and lying just east of the Vermilion River. Nearly all of the area except the beach proper and a few small tracts is rather heavily wooded, permitting the heavy black soil to hold the moisture much longer than it should in a place of this kind.

"The park is under the control of a stock company of which Mr. J. G. Ziegler, 114 Linden Street, Cleveland, is the secretary, and Mr. J. E. Moeller is the superintendent in charge of the grounds.

"The place is used as a public picnic grounds, camp meeting grounds, and as a summer resort. The season opens June 18th and closes September 17th. During the first part of this season the grounds have one or two picnics a week, with a usual attendance of 200 to 300, but with a few gatherings of 1,000 or more and one of about 5,000. The normal population is also increased for nearly two weeks by a Sunday school convention and by a camp meeting. There are sixty-nine cottages and a hotel on the grounds, in which it is estimated that more than 500 people are housed; this represents the normal seasonal population. During the winter only one house is occupied.

SEWERAGE.

"For the use of the public there are provided four outdoor water closets, two for men and two for women. These closets are provided with a brick vault which is connected to the sewer system, to which the contents of the vaults are flushed by large tipping boxes filled with water from the general supply and so arranged as to flush every few hours or once a day, depending on the number of people on the grounds. All these closets were in very good condition for their kind, very little odor being noticed, and they were kept quite clean. The hotel and about one-half of the houses are provided with private water closets

for the use of the occupants of the same. The occupants of the other cottages and the visitors in general must use the public closets. The slops from the unsewered houses must also be carried to the public closets. While these public closets are fairly well located, they are very inconvenient for many of the residents. The private closets are of both the automatic and hand flush pattern, this resting with the owner of the cottage. Also a number of the cottages are on the line of the sewers, but have as yet no closets or even sinks for waste water. Many of the outside hydrants discharge upon the ground being provided with no drain for the waste. In a number of instances kitchen slop and wash water had been thrown upon the ground.

"The sewer system is divided into three districts, so called—east, and west, and the hotel. Each one of these divisions discharges its sewage to a closed plank cesspool located on the lake beach. From these the sewage is supposed to be discharged to the lake at favorable times, but the valves were not tight and the sewage was seeping out on the beach all the time, discoloring the sand over a small area and causing a decided odor. One isolated house has a cesspool on the beach, but this has no outlet to the lake. Statements were conflicting as to the number of times the large cesspools were emptied, but from all that could be learned it was from one to two times per month.

GARBAGE.

"This is deposited into covered metal cans and removed every day or so by a farmer. No cans were noticed that could be called offensive. Much light refuse and some garbage is thrown on the beach, destroying the beauty of the same, and making the bathing feature much less attractive.

WATER SUPPLY.

"The public water supply is pumped from two timber boxes sunk into the sand at the edge of the lake. These boxes are 12x14x5 feet deep and 8x20x5 feet. Along the outer edge they are covered with but a few inches of sand so that the lake water has almost free entrance to them. The water is pumped to two elevated tanks of about 23,000 gallons capacity, and distributed from these over the grounds through small pipe, many of which are exposed so that the water is very unpalatable by the time it reaches the consumer. With the intention of remedying this some of the water is run to a large cistern in the center of the grounds from which it is pumped by two hand pumps. This provides a fairly cool water for those who wish to carry it.

"The timber boxes at the beach were installed this spring, well points being formerly used. These latter were so easily uncovered by

the waves that the lake water was pumped freely for much of the time. While these timber boxes now in use could no doubt furnish a potable water if they were removed from all local pollution, yet in the position which they now occupy they are far from able to do this. Only 180 feet east of the water supply boxes is located one of the sewer outlets, from the west side system, which sends to the lake and deposits on the beach the leachings from the cesspool previously described. Just a few feet further removed is the cesspool itself and a little nearer is one of the large public closets. Both of these contribute to the sand beach more or less filth, as neither is water-tight. It seems absolutely beyond comprehension that any one would endanger the lives of themselves and the public by attempting to get a drinking water under such conditions as exist here. There is certainly every opportunity for the contamination of the water supply from the sewer outlet and cesspool both by leaching through the sand and by direct inflow from the lake. It is certainly safe to predict that a few cases of typhoid fever on the grounds would expose the entire population to an epidemic of the disease.

GROUNDS.

"As previously stated the grounds are over-forested to such an extent that the heavy soil holds the moisture and remains soft and boggy for a long time after each rain. The roads are muddy and badly cut up by the hauling of sand from the lake shore. This constant teaming covers the road with filth, causing a very objectionable nuisance. That conditions are not improved is easily understood when it is learned that the superintendent receives a salary of \$700 per year out of which he must maintain himself and family, feed a horse, and hire all the help he has in caring for the grounds. Instead of being able to direct affairs and see that everything is in a proper condition he is compelled to work from morning until night trying to keep the grounds at all inhabitable. With the grounds to care for, the public closets to clean, water to pump, etc., there is easily work for several men.

"In order to place the park in a sanitary condition it will be necessary to obtain a pure water supply, establish a more efficient method of caring for the sewage, supply all houses with closets, supply drains for slop and waste water, tile the grounds to remove the surplus storm water, and supply sufficient help to keep the grounds and roads clean."

A copy of this report was furnished to the secretary of the Linwood Park Company. Later, by request, the Secretary of the State Board of Health held a conference with the president and secretary of the company and discussed needed improvements to place the grounds in a proper sanitary condition. They expressed themselves as being willing to make any improvements within their means, and stated that

they would make suitable arrangements with an engineer for the construction of water filters similar to those in use at Lakeside.

They also agreed to improve the drainage of the grounds.

REPORT OF AN INVESTIGATION OF MILL CREEK.

BY DR. BYRON STANTON, MEMBER OF THE BOARD.

Believing that no work of greater importance could be undertaken by the State Board of Health than that directed towards the removal of sources of pollution of the streams of the state, I have caused to be made, during the month of September, a sanitary survey of the valley of Mill Creek, a tributary of the Ohio River, whose watershed occupies about 168 square miles near the center of Hamilton County and small portions of Butler and Warren counties. No one can visit that valley without being impressed with the menace to health, comfort and business interests of the people who live along it in the great amount of sewage, household and factory wastes and the washings of dairies and pasture lands that flow into the stream. A stream may be the receptacle of a certain amount of sewage without exposing those who dwell along its banks to danger or discomfort, unless used for a public water supply, but Mill Creek has long passed the limit of safety. Indeed, sewage is the predominate element except at high stages of water. My familiarity with the stream enables me to say that the proportional amount is rapidly increasing with the increase of population and the growth of the manufacturing industries in that part of the county. There is probably but a single stream in the state (the Cuyahoga) that shows as great contamination, and measures are now being taken to remove that.

The sanitary survey of Mill Creek valley was made by Mr. B. H. Flynn, Engineer of the Board, and his report of the findings and the report of Mr. E. G. Horton, Chemist and Bacteriologist of the Board, of the chemical analyses of samples of water taken from various points along the course of the stream are herewith submitted. These reports show the sources, approximate amount and dangerous character of the contamination. They contain scientific data of interest and practical value. They show that Mill Creek ranks high in importance, not from its size but from the great number of sources of contamination and the great number of municipalities interested. They show that all the branches of Mill Creek are more or less polluted. They show the importance of the early adoption of measures for dealing with the pollution by the co-operation of the various municipalities in the Mill Creek watershed in devising ways and means for reaching the people

and through them the legislature, to which appeal must be made for the mandatory legislation through which relief can be obtained.

The report of Mr. Flynn shows that there are included in the watershed all or parts of some fourteen corporations, with populations ranging from 1,000 to 80,000 and four of less than 1,000, and about twenty hamlets or settlements, each adding its share to the pollution. In addition to these there are several public or denominational institutions, asylums, hospitals, convents, penal and correctional institutions, which have an aggregate population of over five thousand, and a total population of that portion of the watershed that drains directly to Mill Creek of over 125,000.

The report of Mr. Horton upon the chemical analyses of the samples of water taken above Reading and Lockland shows that contamination above these places is largely from surface sources and not of a particularly dangerous character, but the samples taken below those towns, at Carthage, Elmwood, Ivorydale, and Brighton, give evidence of rapidly increasing pollution with sewage and other putrescible material of a very objectionable character, and below Ivorydale a considerable mineral pollution. The latter is not, however, of so objectionable a character from a sanitary point of view. The disappearance of the nitrites and the nitrates that were present in the upper samples is a good index of the amount of pollution, the nitrifying organisms not thriving in the presence of such excess of organic matter and the nitrates and the nitrites that had been formed being broken up for the oxygen they contained. The supply of available oxygen not being sufficient for proper oxidation, putrefactive reactions are set up with the result of very foul smelling compounds being formed, as is always the case when organic matter is decomposed out of contact with sufficient oxygen.

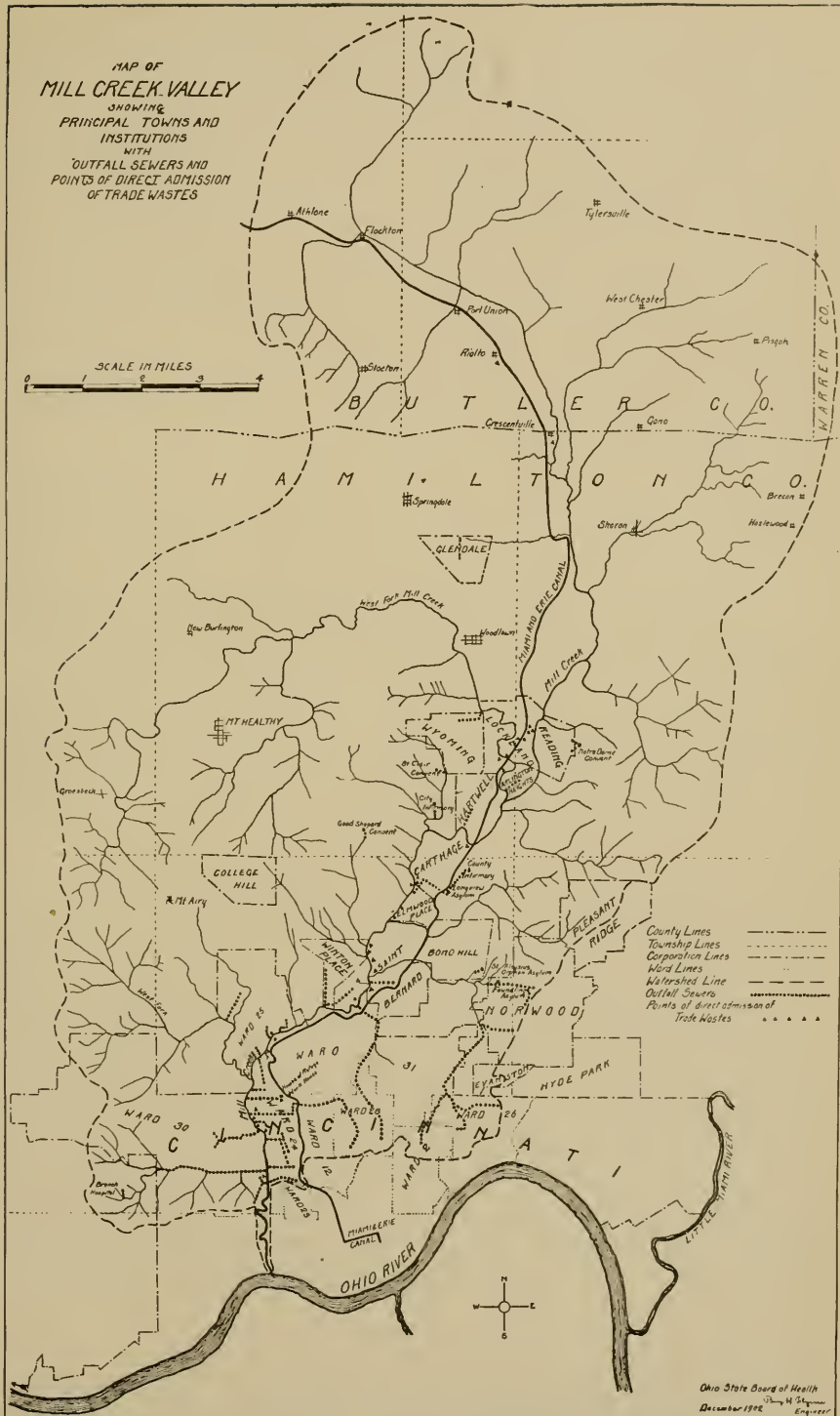
The matter of the disposal of sewage and manufacturing wastes of Mill Creek has been the topic of discussion at various times and at least two sets of plans for sanitary sewers along Mill Creek and its branches have been made, but without results. The time has come when something of a practical character should be done. Sanitarians and engineers are practically in full accord as to the dangers from the continuance of the pollution and as to the means of relief. By methods within our reach an ever present source of danger and discomfort may be removed and a disgusting picture turned into one of beauty with an outlay trifling in amount when we consider the benefit that will result.

I realize the fact that in the solution of the problems connected with the disposal of all refuse that finds its way to the stream, legislative, scientific and financial difficulties are to be met. The location of several corporations in the watershed seems to demand that some joint action be taken by them and the question of first importance is the pro-

MAP OF MILL CREEK VALLEY

SHOWING
PRINCIPAL TOWNS AND
INSTITUTIONS
WITH
OUTFALL SEWERS AND
POINTS OF DIRECT ADMISSION
OF TRADE WASTES

SCALE IN MILES
0 1 2 3 4



curement of such legislation as will secure co-operation of those municipalities. This is necessary for the adoption and execution of the plans for relief. We must look to the exercise by the state of the intrinsic right of control for the protection of its citizens and the prevention of one municipality doing an injury to another. With the views of sanitarians and engineers so practically in full accord as to the necessity for, and the methods of relief, it should not be difficult to secure the legislation to provide for the co-operation of the municipalities or the creation of a commission to act for them to pass upon the plans proposed and adjust the proportional share of the expense of the several corporations and institutions to be benefited.

The *scientific* problem is one of more easy solution than the legislative. It is a problem to which the minds of competent engineers have been directed and the consensus of opinion among them is that a sewer to the Ohio River of a sufficient capacity to carry the waste material seems to offer the best solution. To such disposition of the refuse there can be no objection so long as our great navigable rivers are to be carriers of our sewage. Should the purification of the sewage ever be required such a sewer as is here suggested would be a necessity.

The *financial* problem involved should not be difficult of solution. when life, health, comfort and business interests are considered. I would therefore recommend that the State Board of Health take such action as may be deemed best to bring about united action of all interested in an effort to secure the legislation required to enable the municipalities to rid themselves of a grievous nuisance.

REPORT OF THE ENGINEER, MR. B. H. FLYNN.

Of the 216 square miles of territory, with its population of 375,571, which lies between the two Miamis and drains to the Ohio River, 168 square miles, with a population of 125,298, drains directly to the Mill Creek system, Mill Creek being the principal waterway of this area. The remaining 48 square miles, with their 250,273 people, drain directly to the Ohio River. Under natural conditions, a little larger area would drain directly to Mill Creek, but since the construction of Cincinnati's sewer system some of the drainage formerly belonging to this stream is diverted direct to the Ohio River. This area thus changed includes some of the most densely populated portions of Cincinnati and the diversion of its drainage worked greatly to the benefit of the creek rather than to its injury on account of the loss of the area.

AREA.

Mill Creek as it now stands has a drainage area of approximately 168 square miles, as nearly as can be estimated from large county

maps. The West Fork of Mill Creek, joining the main stream at Arlington Heights, has a drainage area of 36 square miles, while the main stream, or what is commonly known as the East Fork, at this point has an area of 81 square miles.

The stream drains the southeastern portion of Butler County, a small strip in Warren County, and the eastern central portion of Hamilton.

POPULATION.

Within the limits of the watershed there are all, or portions of, some eighteen cities and villages, each of which, with the exception of Arlington Heights and Mt. Airy, has a population in excess of 1,000, and is classed as urban. For the purpose of this article these two villages have been included in the urban list thus making this class include all incorporated places. Of the incorporated villages, or rather settlements, there are more than twenty, depending on how close the line is drawn.

Following is a list of the incorporated places with their respective population, noting however, that only that portion of the population is given for Cincinnati, Evanston, Norwood, and Pleasant Ridge, which it is estimated is included in the Mill Creek watershed.

Towns.	Pop. for 1900	Towns.	Pop. for 1900
Arlington Heights	360	Mt. Airy	400
Bond Hill	1081	Mt. Healthy	1354
Carthage	2559	Norwood	4000
Cincinnati	79423	Pleasant Ridge	320
College Hill	1104	Reading	3076
Elmwood Place	2532	St. Bernard	3384
Evanston	900	Winton Place	1219
Glendale	1545	Wyoming	1450
Hartwell	1833		
Lockland	2695	Total	109235

The figures given above and all others on population are from the census of 1900, no attempt having been made to estimate the change for the present year. This was not thought advisable on account of the uncertainty of the ward populations of Cincinnati due to changes in boundaries.

The population of the unincorporated settlements together with the scattered rural is 16,063.

The total population is 125,298.

The total population per square mile is 764, divided into 650 per square mile for the urban, and 96 for the rural.

The watershed in Butler and Warren counties has no urban population and only an estimated rural population of 2,265.

SOURCES OF POLLUTION.

That Mill Creek is grossly polluted there is no doubt, it takes but a passing glimpse to convince any one of this fact. In a stream such as this where the pollution extends over some fourteen miles and is caused by such a motley array of waste and refuse, it is difficult to determine just how much of the trouble is caused by each factor. Briefly, the main sources may be classed as sewage, trade wastes, and washings from dairy barns. The bulk of the sewage proper is, of course, from the municipal sewers, but the various institutions up the valley contribute no insignificant amount.

Under the heads as outlined above there is given below a brief census of the principal sources of pollution in each.

MUNICIPAL SEWAGE.

All of the incorporated towns with the exception of Mt. Airy and Mt. Healthy have a public system of water supply and contain a greater or less number of houses and buildings in which there are water closets installed. Of the sixteen towns supplied with water only three, however, Cincinnati, Evanston, and Norwood, may be said to have a system of sewers to care for the waste water. In the remaining thirteen there are numerous drains and ditches which receive considerable waste from the private houses. As has been frequently stated, hardly anything is so unfortunate as for a town to have a public water supply without its attending sewer system to care for the sewage that must come sooner or later. If water is furnished, closets and baths will be installed and the water sent somewhere, to cesspools, ditches, private sewers, storm sewers, all equally bad, as they at the best only hide or pass on the sewage, they do not dispose of it.

Following are the notes on the amount of sewage from each of the sixteen towns having public water supplies.

Glendale. This village has but one short sewer constructed for storm drainage only but now receiving sewage from a number of private houses, and it is claimed a portion of the drainage from the school house. It is estimated that there are eighty-five water closets

in use here and it may be safely said that the waste from half of these reaches the stream.

Reading. This place is said to have no sewers whatever. Ten water closets are reported as in use with some of them using private sewers to the creek.

Arlington Heights. There are reported for this small hamlet some fifteen closets with one short sewer and several private sewers.

Lockland. No estimate could be secured on the number of water closets in use, but it is not large. There are but a few short storm sewers in use, but at least one of these has house connections.

Wyoming. A number of storm sewers are reported for this residence town. As it is claimed that there are fifty water closets in use it is certain that the sewers receive some drainage from these.

Hartwell. The water works authorities report that there are 120 water closets in use here and that the majority of them discharge their waste to vaults and cesspools. There is one sewer in use and this is known to have two connections.

Carthage. There are no sewers here except a few storm water connections to the Longview Asylum sewer which traverses the village. There are ten water closets reported and two of these are known to drain to the above mentioned sewer.

Elmwood Place. Only storm sewers are reported and no closet connections are known though there are eight water closets in use.

Pleasant Ridge. This village is just now installing a public water supply and there are probably no closets in use as yet.

St. Bernard. There are a few short sewers in use in this village with twenty closets reported in use.

Bond Hill. A few closets are reported draining to cesspools; there are no sewers.

Norwood. This village has a rather complete system of sewers with outlets to Bloody Run and Duck Creek. As only one-half of the village drains to the west it is not believed that the sewage from more than 250 closets reaches Mill Creek.

Evanston. This small village is also well sewered with approximately half of its drainage flowing to Bloody Run. It is estimated that there are eighty-five closets in use in the above district.

College Hill. There are fifty-five water closets in use here all reported as draining to cesspools.

Winton Place. Sixty-four closets are in use here, the majority of which are drained to the few short sewers in use.

Cincinnati. There are many miles of sewers in the district draining to Mill Creek, and still large sections of this territory unsupplied. With-

out a house to house canvass it is impossible to determine exactly the number of people using sewerred closets, but by estimating from the statistics of the entire city it is believed that there are at least 4,000 closets in use, representing probably 30,000 people or something less than half of the total estimated population of the district.

From the above it is believed that above Cincinnati, Mill Creek receives municipal sewage from a population not in excess of 2,500 and that in the city proper the figure is 30,000 or 32,500 in all.

SEWAGE FROM INSTITUTIONS.

Notre Dame Convent—East of Reading. It is reported that there are 180 pupils and attendants at this institution. All have the use of sewerred closets, the drainage from half of the building going to a cesspool and the balance direct to a run.

St. Clair Convent—Southwest of Wyoming. This is a rest house and contains on an average some 200 people, all using sewerred closets draining to a cesspool and then to the branch in front of the building.

City Infirmary—West of Hartwell. The average number of inmates and attendants is 900. The sewage from the entire institution is sent direct to a branch flowing south to Mill Creek.

County Infirmary—East of Carthage. The average population is 265, all of which number have the use of closets draining to the Longview Asylum sewer.

Longview Asylum—East of Carthage. Average population is reported to be 1,285. The sewage from this large number of people is carried through Carthage direct to Mill Creek.

Good Shepherd Convent—West of Carthage. This is a large home with some 825 children and attendants. All use sewerred closets, the drainage from which is sent direct to a small branch which flows south to Mill Creek.

St. Aloysius Waisenhous—Bond Hill. Two hundred and fifty is the average population of this orphan asylum. Its sewage is sent to large storage reservoirs which are emptied in time of rain to a branch leading to Bloody Run.

St. Joseph's Foundling Asylum—Norwood. The population reported for this place is 175. Its sewage is sent direct to a Norwood outfall sewer leading to Bloody Run.

House of Refuge and Workhouse—Ward 24, Cincinnati. The combined population of these institutions is 1,000, 510 for the first and 490 for the second. The sewage is sent direct to Mill Creek through a joint outfall sewer.

Branch Hospital and Pest House—West of Cincinnati. It is reported that the average population for these two establishments is 200. The sewage is sent direct to a ditch leading to Lick Run.

There are a number of less important institutions scattered through the district but they send their sewage direct to city sewers and have on this account been included in the regular municipal statistics.

The total number of people in the institutions listed above is 5,080. The sewage from this entire number reaches Mill Creek more or less directly and is responsible for more pollution than can be laid to all the municipal sewers outside of Cincinnati.

TRADE WASTES.

Glendale, Reading and Arlington Heights have no industries producing liquid wastes.

At Rialto and Crescentville there are two paper mills, employing some thirty men each, which send some refuse to the stream but the canal receives the major portion of it.

At Lockland there are located four paper mills, The Bowen, Fox, and two Halderman mills. These are located on the canal, use power from this waterway, and send much of their refuse to it also. It is reported that the waste of all the mills, except the lower Halderman, is sent to the canal, the latter however sends some of its washings to the creek. There are some 100 men employed in the four places, only twenty of whom use sewered closets and this sewage goes to the canal. The trade waste consists of the washings from the dirty rags and paper, coloring matter, and bleach from the straw vats of the lower Halderman mill.

Phillip, Carey and Company manufacture tarred paper, magnesia coverings, etc., and employ some 200 men, twenty-five of whom use closets sewered to the creek, the balance using vaults. The trade waste consists of ammonia water, tar, oil, etc., and causes a pollution in the creek that is more unsightly than unhealthy.

Little information could be secured concerning the operation of the starch works. It is reported that they employ about 100 men, only a portion of whom have the use of closets sewered to Mill Creek. Their principal waste is the enormous amount of water used in washing the starch and carrying off with it enough of the latter to make it a highly putrescible liquid which soon decomposes in the stream, forming black deposits which give off very offensive odors. This refuse is noticeable in the creek for some distance below and its foul smell is not lost until it is masked by fresh pollutions lower down.

Sterns, Foster and Company manufacture wadding, batting, and mattresses, etc., and employ some 225 men who have the use of closets sewered direct to the main stream, which also receives the trade waste con-

sisting of dye stuff, sulphuric acid, chloride of lime, caustic soda, etc., all diluted with a large amount of water.

Wyoming and Hartwell also have no important industries producing liquid wastes.

At Carthage, the Edgemont Springs Distillery, at the upper edge of the village, sends its wash water and waste mash direct to the creek. At times this is an offensive pollution, but as the mash is sold, not a great deal of it continually reaches the stream. The twenty employes use vaults.

The Chatfield Manufacturing Company make tarred paper, etc., but their waste goes to an abandoned sand pit and does not reach the creek. Their employes use vaults.

The Jewell Carriage Company has some seventy-five employes using sewered closets, the waste from which together with the water from the rubbing decks is sent direct to Mill Creek.

The Hess Spring and Axle Company employ 350 men, all using closets reported to be sewered to the Longview Asylum sewer. Their waste consists of water from the grinding machines and is not offensive.

At Elmwood Place, the Block, Pollock Iron Company has 250 men using closets sewered to cesspools draining to Mill Creek.

The Highland Buggy Company has seventy-five men using closets on the edge of Mill Creek.

N. Marionthal and Son employ twenty men in the manufacture of glue. The principal waste consists of the lime liquor used in drawing the stock, and is certainly offensive. The men use vaults on the edge of the creek.

Across from the glue factory is a small slaughter house sending all of its waste to Mill Creek direct.

The Laidlaw-Dunn-Gordon Pump Company employ some 500 men, all using closets sewered to a branch of Mill Creek.

At St. Bernard the Emery Candle Company has about 150 men engaged in the manufacture of candles, glycerine, oils, etc. The trade refuse contains acids, lime, soda, and grease; all of which, together with the sewage from the closets, is sent direct to the creek.

Proctor, Gamble and Company employ 950 men in the manufacture of soap, candles, glycerine, oils, etc. All the employes use closets sewered to Mill Creek. The works produces about 2,000,000 gallons of waste water containing acids, alkalies, and refuse, etc., with portions of it exceedingly foul.

The Corn Product Company is now putting its plant in shape and will shortly again be sending the characteristic starch-works refuse to Mill Creek.

There are two fertilizer works here and several minor concerns but they produce no liquid waste and employ but few men.

Bond Hill, Evanston, and Pleasant Ridge have no large manufacturing plants producing objectionable wastes.

At Norwood the Globe Wernicke Company employ some 750 men in wood working, all of whom use closets sewered to Bloody Run.

College Hill has no manufacturing.

At Winton Place the Cincinnati Traction Company has some 300 men in their car works, all of whom have access to closets sewered to the village sewers.

Lois Lipp and Company has 150 men using closets draining to cess-pools which in turn drain to Mill Creek.

The Wagner Refining Company, manufacturing oil and stearine, produce a small quantity of very foul waste which is sent to a ditch leading to Mill Creek.

In the establishments noted above there are 3,845 operatives using closets sewered to Mill Creek, or its tributaries.

On account of the varied and enormous number of manufacturing plants in Cincinnati detailed statistics could not be gathered. The general character of the plants in operation is given by wards so that a very good idea may be secured of the nature and amount of waste produced.

In Ward 25, or Cumminsville, there are a distillery, brewery and several small slaughter houses, all sending their refuse to Mill Creek. Besides these there are a few general manufacturing plants that produce no objectionable wastes. The drainage of the ward is to Mill Creek through a number of short sewers.

Ward 31, including Clifton and Avondale, has practically no manufacturing whatever. It is drained by the Carthage Pike and Bloody Run sewers. The portions of Wards 2 and 26, Walnut Hills, that are within the watershed have no manufacturing. The drainage of this district is to the Bloody Run sewer.

Ward 28, Corryville, also has no important industries and this section is drained by the Carthage Pike sewer.

The portion of Ward 12 that is within the watershed is as yet not very closely built up and has no manufacturing. Its drainage is to the Stock Avenue sewer and to the canal direct.

Ward 30, Fairmount etc., is a very large one covering much ground not yet occupied. It includes among its industries two breweries, hair cleaning works, soap works, wood-working mills, etc. Its drainage is cared for by the large Lick Run sewer and the smaller Carl Street and Harrison Avenue sewers.

Ward 24, Camp Washington, contains a large number of industries which send their waste direct to the creek or the Stock Avenue, Hopple Avenue, Marshall Avenue, Queen City Avenue and Harrison Avenue sewers, which drain this district. Among its industries are three soap works, four tanneries, one brewery, four slaughter houses including the

large abattoir, one glue factory, one pickle factory, one cotton mill, one hair and feather concern, three wood working mills, sixteen foundry and machine shops, some of these very large, three brass works, a paint works, one varnish works, two carriage factories, one brick yard, one ice factory, and a number of miscellaneous establishments. It also includes the large stock yards which still send much manure direct to Mill Creek though the greater portion is said to be hauled away. Night-soil is also dumped on the low land along the creek. A company dealing in dairy cows stable a large number in this ward also.

DAIRIES.

Mill Creek valley supports a large number of dairies engaged in supplying milk to local consumers and to the city. In a few cases the resulting manure is used on the fields but in the majority of the barns it accumulates in enormous heaps which with each heavy rain wash away into the streams.

Owing to the fact that the city records were not complete to date no close estimate can be given of the number of cattle in use. The numbers given below were actually found or reported in, or in the vicinity of the following places: Glendale 1, Reading 8, Wyoming 1, Mt. Healthy 3, Hartwell 3, Carthage 11, Elmwood Place 3, St. Bernard 7, Bond Hill 18, College Hill 4, Winton Place 7, Mt. Airy 11, Cincinnati-Cummins ville 11, Clifton 4, Avondale 2, Westwood 2, Fairmount and Lick Run 15. Total 111.

The number of cows represented by these dairies must certainly be 2,000 though the figure is hard to secure as in the dairies inspected the number ran from 6 to 140.

SUMMARY.

From the figures above it is estimated that Mill Creek above the city receives the sewage from 10,220 people and that the city adds about 31,200 more, making the total figure for the entire stream something over 41,000. This sewage comes from the cities and villages themselves together with the institutions and the manufacturing plants.

The trade refuse sent to the stream comes from seven soap, candle and oil factories, one pickle factory, four tanneries, six slaughter and packing houses, a large stock yard, two glue factories, four breweries, two distilleries, two fertilizer works, three paper mills, two paint and varnish works, two starch factories, two tarred paper concerns, two hair and feather establishments, three cotton mills, six large wood-working mills, six carriage factories, three brass works, twenty-four machine shops and foundries, three fire-works factories, several small brick yards, one ice

factory, and a host of smaller miscellaneous manufacturing establishments.

There were reported to be 111 dairies on the watershed.

From Lockland to its confluence with the Ohio, Mill Creek is an open sewer, foul-smelling nearly all the time, and full of black, putrid mud which washes over everything in the way of the stream, making it unsightly as well. Only after heavy general rains does it lose its offensiveness, and then only for a short time, soon regaining it from the load of filth sent to it.

Its condition is greatly improved over what it would otherwise be by the addition of water from the Miami and Erie Canal which parallels it for much of its length, crossing it twice, at Lockland and just above Carthage. At a number of points its overflows discharge small amounts to the creek and an enormous amount is discharged to it opposite Winton Place, also considerable at the Carthage aqueduct, and at times from the Lockland aqueduct. This dilution not only helps the stream but the canal itself carries to the Ohio River much filth sent to it all along the line.

REPORT OF THE CHEMIST, MR. E. G. HORTON.

EXAMINATION OF WATER COLLECTED AT READING, LOCKLAND, CARTHAGE, ELMWOOD, IVORYDALE AND CINCINNATI.

(Parts per Million.)

Source of Sample.	Above Reading.	Below Reading.	Above Lockland.	Below Lockland.
Number of sample	2562.	2565.	2563.	2564.
Color .. .	40.	45. (?)	37.	50. (?)
Turbidity .. .	20.	24.	64.	56.
Sediment .. .	slight	slight	slight	decided
Odor .. .	faint veg.	faint veg.	faint veg.	strongsew- age
Oxygen required	9.93	10.67	7.20	29.96
N as ammonia albuminoid....	.394	.568	.546	2.460
N as ammonia free .....	.070	.094	.080	1.470
N as nitrites .....	.200 ?	.250 ?	.200 ?	trace ?
N as nitrates	2.40	2.00	none	none
Chlorine	13.7	6.1	10.0	7.1
Alkalinity .. .	210.	211.	139.	260.
Incrusting constituents	7.	33.	47.	36.
Total solids	394.	395.	324.	516.
Loss on ignition	134.	144.	100.	190.

Source of Sample.	Above Carthage.	Below Elmwood.	Above Ivorydale	Below Brighton.
Number of sample	2566.	2567.	2568.	2569.
Color	45. ? off	30.	38. ?	60.
Turbidity	43.	43.	52.	56.
Sediment .. .	slight	slight	distinct	decided
Odor .. .	sewage	sewage	strong peculiar	foul and peculiar
Oxygen required	24.90	18.06	32.81	25.83
N as ammonia albuminoid....	2.460	1.550	1.885	2.064
N as ammonia free	2.710	2.400	4.475	3.800
N as nitrites	none?	none	none	none?
N as nitrates	"	"	"	"
Chlorine	7.2	11.6	478.8	266.0
Alkalinity .. .	245.	247.	137.	244.
Incrusting constituents .. .	31.	18.	185.	44.
Total solids	402.	407.	1553.	934.
Loss on ignition	128.	132.	301.	224.

These samples were received on October 13th, having been collected by Mr. B. H. Flynn, Engineer.

The samples from above Reading (2562) and above Lockland (2563) are much like those from some of the larger streams of the state and show the drainage of a vegetative area. The sample below Reading is unchanged in its mineral character except for a little decrease in chlorides and nitrates, but this sample shows some increase in organic matter although it is not serious in amount.

The sample below Lockland, as well as each of the subsequent ones, gives evidence of gross pollution. The pollution is chiefly organic and leaves the water in a very objectionable condition, from which it is not allowed to recover with the addition of other pollutions at places below.

In the last four samples from Carthage to Brighton little can be said of the details of the analytical findings as all of the samples are so bad that variations in amount of the several determinations are of little significance. We may note a considerable pollution at Ivorydale as shown by the total solids and the chlorides. With the analytical figures as found, it would be expected that some sewage and some acid were being introduced at Ivorydale, but definite assertions are not possible from so complex a mixture so strongly polluted.

It will be noted that the nitrites and nitrates of the upper samples are reduced and do not appear again on account of so great a pollution and insufficient opportunity for purification.

REPORT OF AN INVESTIGATION OF AN ALLEGED NUIS-
ANCE AT NELSONVILLE.

The board of health of Nelsonville passed a resolution, asking the State Board of Health to send a representative there to investigate a nuisance, and a proposed sewer for its abatement. Mr. Flynn, the Engineer, was sent to Nelsonville, August 5, 1902, and in company with the health officer, Dr. N. Hill, made the investigation and reported as follows:

"It is proposed to construct a five-foot storm sewer from Washington to Columbus Street to carry the flow of a run which **diagonally** traverses the block between these streets. The run is now a receptacle for filth of all kinds, including house drainage and garbage, and it is proposed to turn the section named, 750 feet, into a storm sewer so as to prevent such use. As it now stands it is a nuisance for the greater part of the time and is very objectionable to the occupants of the residences and business places along the line. Practically all of the territory tributary to this sewer can reach the sanitary sewer system and it is entirely feasible to turn the run into a storm water sewer.

"The majority of the abutting property owners wish the sewer constructed but as usual there are a few who object and it is requested that some action be taken to convince these parties of the necessity of the improvement. As it stands the run is a nuisance and the construction of a storm water sewer and the keeping out of all house drainage will abate the nuisance. It will be necessary to keep out all objectionable drainage to the run at points above where the present sewer is to extend.

"Attention was also called to the filling in at certain points of the abandoned Hocking canal. These fills, resulting from the forming of roadways, dumps, etc., have resulted in the forming of stagnant pools along the canal which have no outlet on account of said fills. These low places are the receptacles of much filth, and form a justly complained nuisance. The old canal should be filled up or all refuse should be kept out of it and adequate drainage provided for the water finding its way to the same. Information was requested as to who is responsible for the abatement of the nuisance, the state which owns the canal, the parties who placed the obstructions, or the village itself."

The board of health was advised that it would be much better for the council to take action in this matter, and order the construction of the sewer; that their board should bring the matter to the attention of the council by a petition signed by those who were aggrieved and that if council failed to take action the board of health would have authority to abate the nuisance by the construction of the necessary drains, or sewers, compelling all persons who were draining to the run to make connection with the sewer. The board would probably not have this authority unless it could be clearly shown that that was the only practical way the

nuisance could be abated. The proper course for the board to take, if it were feasible, would be to prohibit and prevent all filthy drainage to this run, and to keep out of it all matters that contribute to the nuisance.

In regard to the abandoned Hocking canal, and the nuisance arising from stagnant pools along its course, they were advised that the State claimed no ownership, or at least no responsibility for the condition of the canal, and that their board could enforce an order forbidding the putting of anything in this canal which would create stagnant pools of water, and could prosecute any person who violated such order.

REPORT OF AN INSPECTION OF A SCHOOL BUILDING AT NEWTON FALLS.

The health authorities of Newton Falls requested the State Board of Health to investigate the condition of a school building at that place. Accordingly, Mr. Flynn, the Engineer, was sent to Newton Falls, December 9, 1902, and in company with the health officer, Dr. H. M. Mealy, made an inspection.

Mr. Flynn reported as follows:

"The building in question is a comparatively new brick with six rooms and large basement. It is heated with two Kruse and Dewenter furnaces, one for each side, and is supplied with dry closets of the same manufacture. The closets are located in the basement. The cold air is drawn through basement windows to a cold air room surrounding the furnaces, one for each, passes around and over these, being warmed in transit, and then goes to the warm air ducts to the rooms. A damper is provided at the foot of each duct by means of which a certain amount of cold air may be mixed with the warm for the purpose of regulating the temperature. The heat or fresh air is admitted to the rooms through large inlets placed half way up the sides of the walls. The foul air is drawn through a smaller opening placed at the floor line below the inlet. The duct from the foul air vent leads to a stack placed next to the flue from the furnaces so as to warm the air in the foul air stack and provide an upward current in the same.

"The closets are the usual line of seats over a long brick vault provided at one end with a small drying fire and at the other with a draught fire at the foot of the ventilating stack. The urinal for the boys' side is sewered to a drain and is not connected to the general system.

"It is claimed by the installers of the system that there is no connection between the foul air stack from the rooms and that from the closets. The local authorities could give no information and from the construc-

tion of the building it was not possible to determine this without conducting a test which could be better made by those interested.

"The cause of the complaint is that at times the odor from the closets appears in the rooms to such an extent to be nauseating to some of the children. At the time of inspection every thing was working well and so nothing could be learned from the examination. The school authorities could not say positively whether the stench appeared through the foul air vents or whether it entered by the way of the halls from the basement, but they rather inclined to the first opinion. From the construction of the system it is evident that if the stench appeared through the foul air vents there is some connection between the foul air duct from the rooms and that of the closets. These two flues may not join until they reach nearly to the top of the stack or it may be that they only parallel in the same stack and that on a quiet day with the wind in the right direction the current of air in the foul air duct from the rooms may reverse and draw down with it the foul air just given off from the closet flue. It is more likely, however, that the contractor or even architect saved the extra expense by combining the two flues even if the heating plans did not call for it.

"If there is no connection and the outlets from the two stacks are removed from each other the stench must reach the rooms through the halls, etc. That this is possible is due to the fact that the draught maintaining fire in the foul air closet stack is not kept burning and the fumes from the drying excrement pervade the basement.

"Inspection would also indicate that the drying fire was not kept hot enough to thoroughly dry out the collected matter.

"If there is connection between the two foul air ducts the trouble can only be permanently done away with by severing this connection, though it can be made less noticeable by properly maintaining the upward current in both stacks.

"If there is no connection and the trouble comes by the way of the basement, it can be abated by keeping the closets clean and the ventilating stack and fire in proper condition all the time."

REPORT UPON AN EPIDEMIC OF TYPHOID FEVER AT NILES.

At the request of the local health authorities the State Board undertook an investigation to determine the cause, if possible, of an outbreak of typhoid fever which had been prevailing for some time at that place. Accordingly, Mr. Horton, Chemist to the Board, was instructed to visit

Niles and submit a report of his investigation. His report was as follows:

"The city of Niles, with its population of 7,500, is situated on both banks of the Mahoning River at the mouth of Mosquito Creek, and some three miles below Warren. The city is only partially sewered, and but few closets are connected with the sewers. The sewage reaches Mosquito Creek, and by that tributary enters the river half a mile below the water works. The Niles public water supply is derived from a series of driven wells, 50 to 75 feet, and located between the west end of the city and the river. An emergency intake affords direct connection with the river. Some private wells are in use but many of those concerned in the present investigation were in the suburbs and of considerable depth.

"On arriving in Niles, March 21, 1902, the physicians of the city were called upon and the usual information concerning each typhoid fever patient obtained. As far as the data were in the possession of the physicians they were most kindly furnished to us, which favor we gratefully acknowledge. The source of the milk or water supply not being known in all cases it was agreed the missing information would be collected locally and forwarded to the State Board of Health, as is customary in like investigations. After waiting long and writing frequently, we have, after a delay of four weeks, finally obtained enough of the missing information to enable the report to be made although some details are yet incomplete.

"In the following list of cases, arranged chronologically, there are included a few so called 'mongrel cases' *i. e.*, those more or less closely simulating typhoid and yet such as to be only conditionally, if at all, pronounced typhoid fever by the attending physician. Those not simulating typhoid were excluded by the physicians as they gave the names. In addition it was necessary to omit a few cases of an undoubted typhoid nature because the details of the information were not obtainable. Information not obtained is marked *a*, but in some of these cases a negative statement of value was secured. In cases of doubt as to accuracy of the data concerning the source of the milk or water supply an interrogation point is used.

"On the accompanying map the symbols indicate whether or not the patient was a user of city water and also whether the milk used was obtained from Madden's milk route No. 1. The lines on the map represent the water mains of the city supply.

"In the plate the cases are graphically represented by days (A), while just below there are given in a similar manner the cases on Madden's route (See B). The course of the epidemic is also indicated in curve C. where the cases are platted by weeks. Curve D. is a similar arrangement of the cases on Madden's milk route."

LIST OF CASES.

Number.	Age.	Sex.	Date of Attack.	Nature of Attack.	City Water.	Well or cistern.	Milk.	Remarks.
1	adult	F	Dec. 1	Severe		+	(?) Adams	Brother had been sick.
2	47	M	5	mild	a	+	Brown & Fordyce (?)	
3	40	M	7	moderate	+	+	Madden	
4	22	M	7	moderate	+	+	Adams	
5	child	a	8	a	+	+	Adams (?)	(?) Child of No. 1.
6	3	F	10	moderate	a	+	Adams	
7	17	F	11	severe	+	+	Private cow	
8	45	F	15	mild	+	+	Brown & Fordyce	
9	28	F	16	moderate	+	+	Adams	
10	17	M	19	severe	+	+	Brown & Fordyce (?)	(?) Son of No. 2.
11	31	M	26	severe	+	+	Madden	
12	32	F	27	moderate	+	+	McComb	
13	32	M	1	moderate	+	+	a (not Madden)	
14	37	F	3	moderate	+	+	Madden	
15	24	M	4	severe	+	+	Brown & Fordyce	Had been at Pittsburg.
16	28	M	6	moderate	a	+	Private cow	Teamster.
17	38	M	6	moderate	a	+	a	
18	30	M	6	died	+	+	Madden	
19	25	F	9	moderate	+	+	Madden and others	
20	2	M	13	severe	+	+	Brown & Fordyce	
21	25	F	13	severe	+	+	Madden	
22	8	F	15	severe	+	+	Madden	
23	25	F	16	severe	+	+	Madden	
24	19	M	16	moderate	+	+	Adams	
25	19	F	20	severe	+	+	Madden (cooked only)	Was with No. 21.
26	21	M	20	severe	+	+	Madden, B. & F., Adams	Lived in country; worked in city.
27	50	M	20	severe	+	+	a	

28	48	F	21	moderate	+	Madden	Mother of No. 23.
29	20	F	23	died	+	Adams	
30	51	M	23	severe	+	Madden, 2nd	
31	30	M	23	mild	+	Madden	Husband of No. 21.
32	16	M	24	mild	+	Adams	
33	42	F	25	moderate	+	Madden	{ Sisters.
34	12	F	26	moderate	+	Madden	{ Sisters.
35	16	F	26	moderate	+	Madden	Wife of No. 3.
36	40	F	26	severe	+	Madden	Had been away at times.
37	27	F	28	moderate	+	Direct from Stillwagon Farm	
38	8	F	29	severe	+	Madden	
39	48	M	31	severe	+	Madden, B. & F.	
40	28	M	Feb. 2	severe	+	Adams	Used some Youngstown water.
41	20	F	2	moderate	+	Brown & Fordyce	
42	adult	F	4	severe	+	Brown & Fordyce	Used some spring water.
43	21	M	4	moderate	+	Adams	
44	12	M	6	mild	+	Madden	
45	18	F	8	moderate	+	Madden	
46	40	M	9	severe	+	Private cow	Used some Wheatland water; father of No. 6.
47	5	F	9	severe	+	Brown & Fordyce	
48	10	M	9	severe	+	Madden	
49	16	F	11	mild	+	Brown & Fordyce	
50	8	F	12	moderate	+	Madden, 2nd	Daughter of No. 30.
51	12	M	14	moderate	+	Madden, 2nd	Son of No. 30.
52	11	F	14	severe	+	Madden, B. & F.	
53	12	M	15	mild	+	Private cow	
54	4	M	15	moderate	+	Madden	
55	7	F	16	severe	+	Madden, B. & F.	
56	20	F	18	mild	+	Adams	Sister of No. 25.
57	23	F	18	mild	+	Madden (cooked only)	Used very little city water.
58	7	M	19	mild	+	Madden	Boarded with Nos. 3 and 36.
59	22	M	20	died	+	Madden	
60	18	M	20	severe	+	Madden	
61	15	M	20	severe	+	Madden	
62	16	F	21	moderate	+	Madden	
63	32	F	22	mild	+	Brown & Fordyce	
64	21	M	23	severe	+	a	Only in coffee.
65	14	F	26	mild	+	Madden	

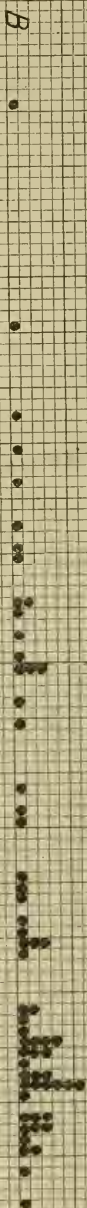
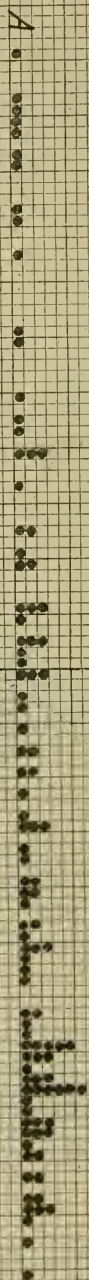
LIST OF CASES—Concluded.

Number.	Age.	Sex.	Date of Attack.	Nature of Attack.	City Water.	Well or cistern.	Milk.	Remarks.
66	28	M	Feb. 26	.....	+	+	Madden	
67	21	M	27	moderate	+	+	Madden	
68	49	M	28	moderate	+	+	Madden, Adams	Also used Warren water.
69	25	F	1 st Mch.	mild	+	+	Madden, 2nd	
70	13	F	1	severe	+	+	Madden	Sister of No. 45.
71	38	F	1	severe	+	+	Madden	Nurse for Nos. 23 and 28.
72	42	M	1	moderate	+	+	Madden	
73	19	F	1	mild	+	(?)	Madden	
74	16	M	2	severe	+	+	Madden (cooked only)	
75	23	F	2	moderate	+	+	Madden	
76	8	M	2	mild	+	+	Madden	
77	21	F	3	severe	+	+	Madden	Same family as Nos 45 and 70.
78	17	F	4	mild	+	+	Madden	
79	21	M	4	mild	+	+	Madden, B. & F.	
80	74	F	4	mild	+	+	Madden	
81	14	F	5	severe	+	+	Madden	
82	27	M	5	mild	+	+	Madden	
83	3	M	5	moderate	+	+	Madden	
84	6	F	5	mild	+	+	Madden	
85	40	M	5	severe	+	+	Madden	Brother of No. 58.
86	10	M	5	severe	+	+	Madden	Mother of No. 74.
87	42	F	6	moderate	+	+	Madden (cooked only)	
88	13	M	7	moderate	+	+	a (not Madden)	
89	38	F	8	moderate	+	+	Madden	Mother of No. 54.
90	8	F	8	moderate	+	+	Madden	Daughter of No. 89.
91	50	M	8	moderate	+	+	Madden	
92	8	M	9	severe	+	+	Madden	Son of No. 91.

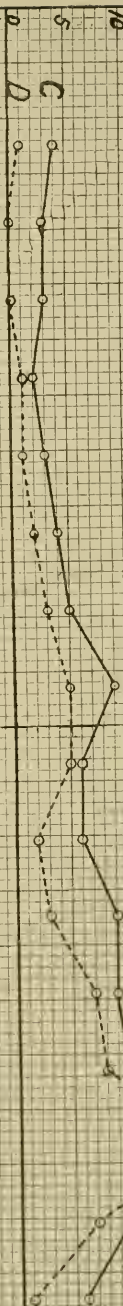
93	20	F	9	severe	+	+	Madden	.....	Wife of No. 11.
94	28	F	9	severe	+	+	Madden	.....	Daughter of 11 and 94.
95	3	F	10	severe	+	+	Madden	.....	Husband of 89. See 54 and 90.
96	42	M	11	mild	+	+	Madden	.....	Came from Kentucky sick.
97	26	F	11	.....	.....	.....	.....	.....
98	27	M	11	<i>a</i>	+	+	Madden	.....
99	7	F	13	mild	+	+	Private cow	.....
100	45	M	13	mild	+	+	Madden	.....
101	8	M	15	mild	+	+	Private cow	.....
102	35	M	15	<i>a</i>	+	+	<i>a</i>	.....
103	23	M	16	mild	+	+	Adams	.....	Husband of No. 33.
104	27	M	16	severe	+	+	Everywhere	.....
105	50	M	16	moderate	+	+	Madden	.....
106	23	M	17	<i>a</i>	+	+	Private cow	.....
107	45	M	19	mild	+	+	Adams	.....
108	45	F	22	severe	+	+	Private cow	.....

Miles Typhoid Fever

December 1901 - March 1902

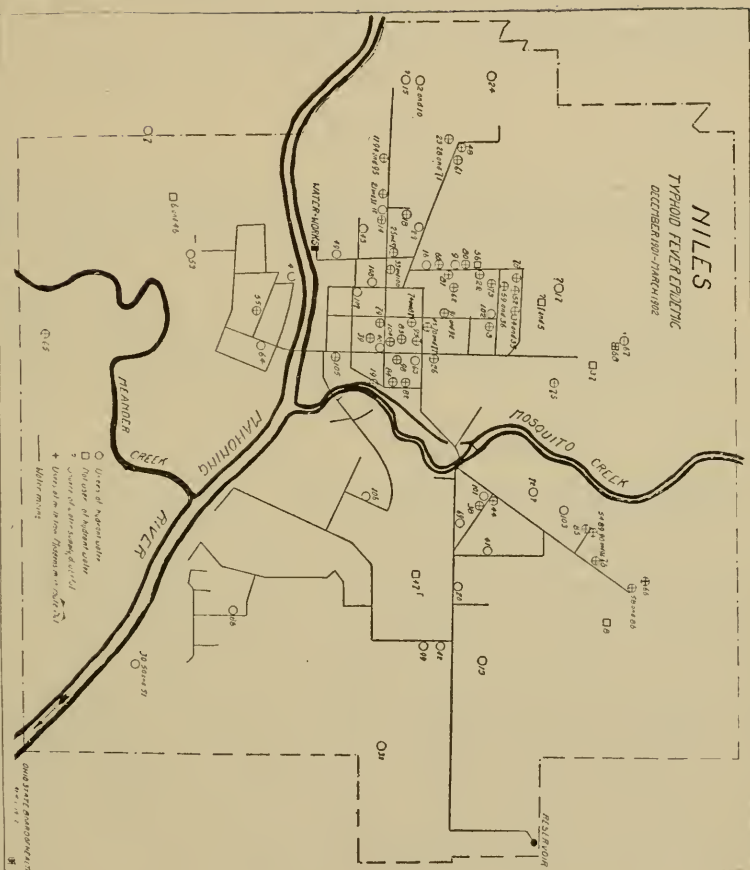


{ A - Cases by days
 B - Cases by days on Madden's milk route No. 1
 C - Curve of cases by weeks
 D - Curve of cases by weeks on Madden's milk route No. 1



December	1	7	14	21	28	4	11	18	25	1	8	15	22	1	8	15	22
							January				February				March		

NILES TYPHOID FEVER EPIDEMIC DECEMBER 1910 - MARCH 1912



By the preceding arrangement of the data it is seen there were 108 cases of typhoid fever between December 1, 1901, and March 22, 1902. Since one (No. 97) was an imported case it is omitted hereafter, and does not appear on the map or plates.

Since typhoid fever has existed to a greater or less extent at Niles for some time, it may be said to be endemic, and no attempt is made to account for each individual case.

The following summary concerning the sources of water and milk used by the patients is at once quite suggestive.

WATER.

When the patient had been in the habit of using city water, whether at home, at work, or elsewhere, the case was marked as a user of hydrant water.

Users of hydrant water	93
Not users of hydrant water	6
Source of water supply not obtained	8
	<hr/>
Total	107

Among the 93 users of hydrant water, 57 were reported as using no other water, while of these 57, 37 used Madden's milk (route No. 1), 18 did not use Madden's milk, and two were unreported. Of the six non-users of hydrant water, two had been away from Niles at frequent intervals, and none of the remaining four used Madden's milk. Of the eight with unreported sources, additional information as to patient's vocation, etc., indicates that four did have opportunities to use hydrant water, while in each of the other four cases there had been a recent attack of typhoid fever in the house. Hence it is shown that 87 per cent. (and possibly 91 per cent.) of the patients were users of hydrant water.

PRIVATE WATER SUPPLIES.

Since but fifty cases were reported as having used water from private sources, and but two or three from any given well, while nearly, if not quite every case had opportunity to obtain the infection elsewhere—the epidemic was not due to the use of private water supplies. In this connection, it may be well to call attention to the doubtful procedure of using private wells in so old a city as Niles, where typhoid fever has prevailed so much and with so little of the city's population having access to sewers.

MILK SUPPLIES.

Users of milk from Madden's route No. 1	63
Users of milk from Madden's route No. 2	4
Users of milk from Adams routes 1 and 2.....	15
Users of milk from Brown & Fordyce's routes 1 and 2	15
Users of milk from McComb's route	1
Users of milk from private cows	9
Source of milk supply unreported	7
	<hr/>
	114
Included twice	7
	<hr/>
	107

The first six routes given are of practically the same extent, but the business of each of the three dealers or firms is quite uniformly distributed over the city; i. e., no dealer handles almost exclusively any given portion of the city. Each of the first six routes supplies about one-eighth of the city with milk.

From the foregoing it is seen that with the exception of Madden's route, No. 1, the milk supply of the city is not to be held responsible for the epidemic. In Madden's route, No. 1, we find 59 per cent. of the typhoid fever cases in this epidemic. In other words, on a given milk route there occurred almost twice as many cases as on the combined territories of five other routes, each equally as large as the first.

That the epidemic was not alone due to Madden's milk is conclusively shown by the fact that about 40 per cent. of the cases did not use any of his milk. Again, it is not to be said that 59 per cent. of the cases were due alone to the use of Madden's milk, for we find among the 63 cases on his route, No. 1, 59 were also users of hydrant water, and only one was a non-user of the city water, while the three remaining cases were unreported as to source of water. Had the trouble originated alone with Madden's milk, we should have expected more cases among non-users of city water. On the other hand, if the infection came alone from the city water, why was there such a large proportion of cases confined to Madden's one route. In the latter condition it would certainly be an extraordinary distribution of cases.

POLLUTION OF THE PUBLIC WATER SUPPLY.

It was ascertained that water had been pumped directly from the river to the mains through the emergency intake on at least two, if not more, occasions. Information differed as to the number of times the intake had been recently used.

Because of a fire, river water was pumped to the mains on February 19th. The heaviest outbreak of cases in the epidemic occurred from

March 1st to 5th; *i. e.*, 10 to 14 days after this addition of river water. This length of time corresponds to the incubation period of typhoid fever. In this connection we would also call attention to the fact that of the 33 cases apparently from February 26th to March 11th, 31 (94 per cent.) were users of milk from Madden's route, No. 1.

Authorities differ as to the exact date of the other occasion (if there were but two), when it is universally admitted that river water was introduced to the supply, some saying December 14, 1901, others saying January 11, 1902. Allowing for the incubation period of typhoid fever, we find no evidence in the cases given of a pollution of the water supply on the first date, but in the week ending January 26th, we have the most cases occurring in any seven consecutive days of the first half of the epidemic, and this period would correspond with a pollution on January 11th. The emergency intake is not always open, for samples of water taken February 5th at the pumping station when the wells were being pumped, and from a hydrant in the city, showed, on analysis, that river water was not being added, and moreover, that the water from the water-works well was potable. Additional samples of the city water, received April 11th, likewise indicate the good quality of the city supply when the raw river water is not added.

OPPORTUNITIES FOR TYPHOID POLLUTION OF THE MAHONING RIVER.

The possibilities for the introduction of typhoid bacilli into the river water above the emergency intake at Niles during the fall and winter were found to be as follows:

1. It was learned that two or three cases of typhoid had occurred at Warren, the sewage of which city empties into the Mahoning about three miles above Niles.
2. Some of the earlier cases at Niles occurred in unsewered portions of the city, and sufficiently near the river with the direct surface drainage that was evident to make the domestic use of the river water a dangerous procedure.
3. When vaults are cleaned the material is hauled to a "sewage farm" a mile or two up the river, and there spread upon the land of the river bottom or on the hillside draining to the river. As Niles is but partially sewerred, and typhoid has been in evidence to a considerable degree the past two years, the use of river water or the present "sewage farm" should be abandoned.

4. Typhoid is present at Newton Falls, located on the river above Warren. Should infection have come from this source, it is to be re-

membered that Warren's immunity has resulted from the purification attained by filtering their public supply, which is derived from the river.

With the above conditions it must certainly be conceded that the water of the Mahoning River at Niles is not potable nor safe for use. The analysis of the river water gives the same conclusions.

THE MADDEN MILK.

The home of Mr. Thomas Madden, some three miles from Niles, was visited and the following information readily obtained. Mr. Madden has but a small parcel of land and therefore keeps no cows, but buys the milk for both routes. Both wagons and their accessories are kept at the Madden home. The milk for route No. 1 is obtained chiefly from the Stillwagon farm, and partially from the Frank Jones farm. Route No. 2 obtains its milk from two other farms. During the time when the milk should be considered, wagon No. 1 was handled by Mr. Madden, while the hired man attended to route No. 2. Both sets of cans are washed in a similar manner at the Madden home, the driver of each wagon looking after his own cans. There is but one water at the Madden place and this is derived from a driven well on high ground some rods above the house on the hillside. The privy is near the house and so located that there is sharp drainage from it for several rods down the valley and away from the well. The location is very favorable for keeping the well from pollution by the privy leakage, should there be any.

The freedom from cases on route No. 2, indicates, as does the analysis, that the Madden well was not the source of infection.

As there were but four cases of typhoid fever among the customers on route No. 2, it is now dropped from this discussion.

OPPORTUNITIES FOR TYPHOID INFECTION IN MADDEN'S MILK ROUTE NO. 1.

Mrs. Madden, in consequence of very feeble health had been an invalid for years, and unable, therefore, to do even light work in connection with the milk cans.

Mrs. Madden developed typhoid fever and died on March 5th, the first call of the physician being on February 12th, or 14 days before the commencement of the two weeks, February 26th to March 11th, during which the city had 33 new cases of typhoid, or nearly one-third of the epidemic. Of these 33 cases, 31 were users of milk from route No. 1. It will be noticed that this two weeks extends from the 7th to the 20th day after the admitted pollution of the public water supply on February 19th. Of these 33 cases, one did not use the city water, 30 did, and two are unreported.

The Stillwagon farm was visited and the only possible connection of any typhoid fever with the family was that of the daughter-in-law of Mr. Stillwagon was sick at Niles (case No. 37), but had not been at the farm since prior to her illness. The waters of the Stillwagon farm were analyzed, and while they were not found to be as good in some particulars as desirable, yet there is no cause for thinking they could have caused typhoid fever. The variations in the analytical findings are explainable by local conditions. Madden's wagon No. 1 was kept at the Stillwagon farm during the week of March 5-12, but adding ten days to these dates for incubation period we have no cases on Madden's route, so no suspicion can be attributed to the stay of this wagon at the Stillwagon farm.

It was subsequently learned that there had been, in the early winter, a case of typhoid fever in the family of a brother of Mr. Frank Jones, but it could not be learned that the patient had recently visited the Frank Jones farm.

RELATION OF MADDEN CASES AND CITY CASES.

The coincidence of the cases among users of Madden's milk with the total number of cases in the city between February 26th and March 11th has been noted.

There were twelve cases apparently from February 14th to 21st in the city, and three-fourths of them were among users of milk from route No. 1. In this connection we would again state that samples of hydrant water and water from the wells at the pumping station had been taken on February 5th, and the examination of these samples showed the water at the time was a potable one. The period just mentioned is 9 to 16 days after the samples were taken.

Among the above 12 patients, 11 used city water, while the other one used neither city water nor Madden's milk.

The remaining *group* of cases among Madden's customers appears January 20th to 26th, when he had two-thirds of the total number of cases (12) for the period, and this is the period following the reputed pollution of the city supply by river water on January 11th. It is also prior to the sickness of either Mrs. Madden or Mrs. Stillwagon, Jr. All of these twelve patients were users of hydrant water.

Thus it is seen in the three periods, January 19-26, February 14-21, and February 26-March 11, that there were 57 cases and of these 48 (or 84 per cent.) were customers of Madden's milk route No. 1, while in the much longer length of time covering the balance of the epidemic

a total of 50 cases appeared in the city, but only 15 (or 30 per cent.) were customers on Madden's route, No. 1.

CONCLUSIONS.

The investigation shows that the city water has been polluted at times by the addition of Mahoning River water; and that the water of the Mahoning River at Niles is so sewage polluted, and especially open of late to infection from typhoid discharges that its introduction into the Niles water supply can only be considered as a hazardous procedure.

The investigation also indicates that there has also been an increase of typhoid fever due to infection of the milk supply in route No. 1, of Mr. Thomas Madden.

Owing to the number of patients using both hydrant water and Madden's milk it is not possible to separate the two infections and the epidemic stands as one resulting from a double infection, water on one side and milk on the other.

We append the results of the analyses of the different samples of water taken at Niles:

REPORT OF EXAMINATION OF WATER FROM NILES.

Parts per Million.

Source of Sample.	Mahoning River.	Water-works well.	Hydrant.	Hydrant.
Date of collection	Feb. 5	Feb. 5	Feb. 5	April 11,
Number of sample.....	2083.	2084.	2085.	2144.
Color .. .	50.	5.	10.	
Turbidity .. .	slight	very slight	trace	
Sediment .. .	very slight	very slight	trace	
Odor .. .	vegetative	faint	faint	
Oxygen required	5.59	.86	.47	
N. as ammonia free.....	.130	.003	.003	
N. as ammonia albuminoid...	.188	.030	.012	
Nitrogen as nitrates .....	.65	.00	.00	trace
Nitrogen as nitrites .....	.000	.000	.000	trace
Chlorine .. .	3.1	22.0	22.5	21.9
Alkalinity .. .	59.	159.	159.	
Incrusting constituents	52.	101.	97.	
Total solids .. .	252.	420.	400.	
Volatile and combustible.....	88.	95.	84.	
Bacteria per c. c.....	11800.	600.	450.	850.
Colon present	Yes	No	No	No

Source of Sample	Madden's Well.	Stillwagon Cistern.	Stillwagon Barn Well.	Stillwagon House Well
Date of collection	Mch.10	Mch.10	Mch.23	Mch.23
Number of sample	2123.	2124.	2138.	2139.
Color	10.	60.	2.	5.
Turbidity .. .	trace	slight	0.	0.
Sediment .. .	trace	very slight	0.	0.
Odor .. .	none	woody	0.	0.
Oxygen required	2.32	8.19	.48	1.72
N. as ammonia free.....	.656	.386	.008	.010
N. as ammonia albuminoid..	.106	.282	.066	.084
Nitrogen as nitrates	1.10	4.56	4.30	6.25
Nitrogen as nitrites .....	.013	.056	.000	.000
Chlorine .. .	302.0	119.6	9.6	180.0
Alkalinity .. .	263.	58.	298.	201.
Total solids	805.	433.	504.	944.
Bacteria per c. c.....	6100.	*	110.	800.
Colon present	No	.....	No	No

* No portion of sample in sterile container.

A copy of this report was sent to the health authorities May 3, 1902.

REPORT OF AN INVESTIGATION OF A 'NUISANCE CAUSED BY SEWAGE FROM THE OHIO SOLDIERS' AND SAILORS' HOME.

At the request of Hon. W. E. Guerin, Jr., representing Erie County in the present General Assembly, Sandusky was visited by the Secretary, March 7, 1902, to investigate an alleged nuisance arising from the improper disposal of the sewage from the Ohio Soldiers' and Sailors' Home near that city. He reported as follows:

"This institution has a population of about 1,600 people. It was learned that the citizens of Sandusky, by private subscription, had paid for the construction of a part of the sewer carrying the sewage from the Home, the sewage having been discharged into an arm of Sandusky Bay running into swamp land. This outlet to the bay became gradually more or less completely closed. There has also been, it is claimed, a lowering of the waters of the bay of nearly two feet since the sewer was constructed. The result has been that a large part of the sewage, for several years, has been retained in this swamp. Within the last two years a ditch 138 rods long was dug from the mouth of the sewer to, or nearly to the bay. This ditch was recently cleaned at the expense

of the Home authorities, and at the present time there is considerable water in it so that much of the sewage is being carried away. There is, however, a large pond of sewage, at a lower level than the ditch which cannot, therefore, be drained by it. It is represented that in dry weather there is no water in this ditch, which becomes overgrown with weeds so that most of the sewage is retained.

"At the time of this investigation the ditch, and especially the surrounding swamp land, was in a very foul condition, emitting most disgusting odors. It is alleged, and it is no doubt true, that in the summer season the conditions are infinitely worse. No one could visit this place and fail to condemn existing conditions as an intolerable nuisance.

"Mr. Fred Horn lives within a few hundred feet of the aforesaid ditch. He represents that he has had considerable sickness in his family; that four members thereof are now ill, and, as his family physician believes, largely on account of this nuisance.

"The outlet of this sewer is within the limits of the city of Sandusky. It appears that the board of health of that city had condemned the insufficient outlet of this sewer as a nuisance, and had requested the trustees of the Home to abate. The health officer of Sandusky and three members of the board of health assisted in the investigation as here reported.

"A visit was made to the Home, where a conference was held with the commandant, General Thomas M. Anderson. The existence of the nuisance was freely admitted, but it was pointed out that the trustees were powerless to abate it without financial assistance from the Legislature. The trustees had already sought engineering advice as to the remedy. Snow and Barbour, engineers, of Boston, had reported that the best plan to abate the nuisance would be to build sewage purification works, the estimated cost of which was given as \$18,000.

"The commandant called attention to some other defects in the sewerage system of the Home. The sewer from the main building is carried in a tunnel which also contains hot and cold water pipes. This part of the sewer is of tile, and there is more or less leakage of the sewage into the tunnel. It would probably be impossible to construct an absolutely tight tile sewer under such conditions. The air from the tunnel has access to the basement of the main building. A part of the main sewer is made of an arch of brick resting upon the natural stone for a foundation. This, doubtless, causes some soil pollution. There has been much trouble in keeping the sewer from the hospital free from obstructions.

"It would seem to be impractical, on account of the great cost, to carry the sewage from the Home to a point in the bay where it could be disposed of by dilution in an unobjectionable manner. The only other feasible plan of disposing of the sewage so as to remove existing objec-

tionable conditions, is by the installation of suitable purification works. This should be done without delay.

"It is most appropriate that the State should set a good example in such matters. The State has, indeed, already done so, and conditions similar to those at Sandusky, though in no place so objectionable, have been removed by the introduction of sewage purification. The State Hospitals at Toledo, Massillon and Gallipolis, the Mansfield Reformatory and the Boys' Industrial School at Lancaster are, by acts of the Legislature, purifying their sewage. Sandusky is equally entitled to such relief.

"In resume: A most objectionable nuisance is, and has for years been, caused by the sewage from the Ohio Soldiers' and Sailors' Home.

"The only practical plan for its abatement seems to be the purification of this sewage.

"It would appear to be the duty of the Legislature to provide the means for applying this remedy."

A copy of this report was sent to the board of trustees of the Ohio Soldiers and Sailors' Home, and they were requested to take steps to have this nuisance abated. That board presented the matter to the finance committee of the House and urged that necessary appropriations be made for the installation of sewage purification works.

An appropriation of \$23,000 was voted by the 75th General Assembly.

Plans for sewage purification works for the Home, as prepared by Messrs. Snow and Barbour, consulting engineers, were presented to the Board at a meeting held April 24, 1902.

In part the engineers' report is as follows:

"The plans provide for intermittent sand filtration with anaerobic reservoirs as an accessory. The filters are laid out in the form of triangles, this shape being dictated by the outlines and the topography of the land. Eight beds are provided for, with a total area of one acre of sand surface. The depth of beds is four feet. The excavated earth will be used to form the dividing embankments. The beds will lie on both sides of a brook, a tributary of Pipe Creek, the distributing pipes being carried across on inexpensive bridges, and the underdrains discharging through the abutments.

"Believing that greater efficiency can be accomplished by frequent quick dosing, we have designed a dosing tank of 7,500 gallons capacity, discharging by siphons, or automatically regulated gates, upon the several beds. The dosing conduits are 12-inch pipe and distribution over the bed surface is by means of wooden sluices, provided with gates at several points, insuring complete control of the flow on the beds. Provision is made for the discharge of septic effluent direct to the stream in time of flood, if for any reason it should be desirable.

"The underdrains are of 4-inch and 6-inch pipe, laid in depressions in the bottom of the beds and surrounded by screened gravel. A layer of the same material is to be extended over the entire bottom of the beds to conduct the effluent to the drains.

"Owing to the expense of filtering material the use of septic reservoirs and consequent reduction of necessary filtering area was decided upon. The tanks will be two in number, with a capacity of 50,000 gallons each, provision being made for the addition of a third should it become necessary in the future, by reason of largely increased flow.

"It is the intention of the trustees to replace the present sewers by a separate sanitary system, and this will be done if the necessary funds become available. Should this not be done, a regulator will be necessary at the point of interception of the present sewer, so adjusted that not over 200,000 gallons per day will be admitted to the disposal works, the balance passing to the present outlet. This would be a temporary provision as the new system will be constructed sooner or later."

The Board voted to approve the plans as presented. Notice of this action was sent to the consulting engineers, April 29, 1902.

REPORT OF AN INVESTIGATION OF A NUISANCE NEAR SALEM.

A communication was received from the health authorities complaining of a nuisance existing in Green Township, Mahoning County, and Perry Township, Columbiana County, and the State Board of Health was asked to give the matter attention.

They were informed that the only action that could be taken by the Board would be to send a representative to investigate and report upon conditions, and to advise with them as to measures, legal or otherwise, necessary for the abatement of the nuisance.

They asked that an investigation be made by the Board, and Mr. Flynn was sent to Salem, July 29, 1902, and with Mr. John Prow, an interested party, went over the territory involved. Mr. Flynn reported as follows:

"The cause of the complaint is the flooding of 130 acres of land lying on both sides of the west branch of Little Beaver Creek, in Perry Township, Columbiana County, and Green Township, Mahoning County. This flooding is caused by certain obstructions, brush, mud, etc., in the channel of the west branch which have reduced the current in the stream above, causing it to fill up its channel with silt, and allowing the water to overflow the bottom land and to damage other higher land by backing up the water in the underdrains. At present the channel is inadequate for a length of 9,000 feet, 4,400 feet in Mahoning County,

and 4,600 feet in Columbiana County, requiring the removal of 6,037 cubic yards of earth at a cost of \$1,700, according to the engineer's estimate.

"Some years ago the upper part of the length of the channel in question was straightened and cleaned out, but the improvement was not carried down far enough to provide a self-cleaning stream.

"It is reported that the commissioners of Mahoning County are ready to do the work on their section as soon as the Columbiana County commissioners are ready to co-operate. This latter body has had the matter under consideration for some time, but has delayed action seemingly on account of the objections of certain parties on whom part of the cost would fall. It is now claimed that these objections have been withdrawn and that all parties interested desire the improvements to be made. It seems, however, that they desire that the county pay a portion of the cost on account of the general benefit to be derived from the draining of the swamp.

"There seems to be no doubt but that this improvement is feasible and that if carried out as planned would reclaim practically all of the land now flooded, and greatly benefit many acres adjacent. The drainage of this swamp would also, no doubt, make the locality more healthful, certainly it would make it a much more desirable district. It would also reduce the number of mosquitoes, which are a plague to the section. It is claimed that there has been a decided increase in the number of cases of malaria since the swamp was formed."

Following the filing of this report the nature of which was communicated to the complainants, the following letter was sent to the county commissioners of both Mahoning and Columbiana counties:

"COLUMBUS, OHIO, August 15, 1902.

"To the County Commissioners, Mahoning County, Youngstown, Ohio.

"DEAR SIRS:—The State Board of Health, by the request of the health authorities of Salem, and of Perry Township, Columbiana County, investigated conditions, alleged to be detrimental to health, caused by the flooding of certain lands in the two counties of Columbiana and Mahoning.

"The investigation showed that about 130 acres of land lying on both sides of the west branch of Little Beaver Creek in Perry Township, Columbiana County, and Green Township, Mahoning County, is very frequently flooded; that this is caused by obstructions from brush, mud, and other accumulations, in the channel of the west branch, which have filled up its channel, and caused the water to overflow the adjacent lands.

"It appears, furthermore, that this has been greatly detrimental to the health, comfort and well-being of residents in this neighborhood. I

am informed that a petition has been properly presented to you, asking for relief from these conditions, and that surveys have been made, showing what changes are necessary. Complaint has been made that there has been an unnecessary delay in getting at the work, and we would most respectfully urge that this matter receive your earliest possible attention, in order that this public nuisance may be properly abated.

“Yours truly,

“(Signed) C. O. PROBST,
“Secretary.”

REPORT OF THE INSPECTION OF SCHOOL BUILDING IN DISTRICT NO. 4, MADISON TOWNSHIP, SANDUSKY COUNTY.

The latter part of August, the Board received a petition from residents and patrons of School District No. 4, Madison Township, Sandusky County, making complaint of the improper heating and ventilation of their school building, claiming that it was not a proper or healthy place for children and should be remedied. They asked the Board's assistance in bettering these conditions.

Accordingly Dr. W. C. Chapman, member of the Board, was appointed a committee to investigate the complaint. Dr. Chapman visited the school building on the 29th of September and made the following report:

“The trustees of the township desire to install a better system of heating than is now employed. The school directors think the school building is well heated now. So far as I was able to judge the neighbors and teachers, the present ones as well as the former ones, state that the method now employed is detrimental to health and for that reason children are prevented from attending school.

“In the center of the room, about 25 by 35 feet and 10 feet to the ceiling, a large cast iron stove is placed; large enough to burn the air in a room five times the dimensions. A six-inch pipe carries the smoke to a chimney at least fifteen feet from the stove. As soft coal is used, this continually becomes foul and smoke fills the room. Around this stove a fender has been placed so as to shield scholars in close proximity to it from the heat. About one-fourth of the room is lost by reason of this stove. Some years ago Smead's system was used with great success and because the furnace required replacing, being burned out, the stove was put to work instead.

“I would recommend that a new plan be adopted whereby ventilation and heating may be obtained, so that the health of the scholars may be con-

served. A return to the old method, whereby the foul air is removed from the floor and circulation of warm air be thus established, will, in my opinion, remedy the trouble. I do not mention the Smead system as the one to be adopted, but believe a communication should be directed to the authorities condemning the method now employed as detrimental to health, and urging that immediate steps be taken to remedy the defective system by installing the old plan or any other which experience has proven to be good."

Upon receipt of this report a communication was sent to the health authorities of Madison Township, Sandusky County, calling attention to the matter and setting forth the findings of the committee. They were asked to make personal investigation, and notified that they should condemn the building for school purposes and prohibit its use until proper provision could be made for its heating and ventilation. Their attention was called to Section 2137 of the revised statutes as amended May 7th, 1902, requiring their board to take this action in such cases.

The following communications from the board of health and township physician will show the outcome of this case:

"GIBSONBURG, OHIO, October 13, 1902.

"To the Honorable State Board of Health, Columbus, Ohio.

"GENTLEMEN:—We have investigated the condition of the school house in sub-district number four, Madison Township, Sandusky County, Ohio, as per your instructions, and beg leave to report as follows:

"In reference to the heating will say that this school house was formerly heated by a sort of furnace located in one corner of the room, with soft coal as fuel. This did not work satisfactorily, the trouble being that it did not warm the building, and that the furnace smoked so that it was impossible to hold school. This was afterwards changed to a stove, with soft coal as fuel, but this did not work, as the pipes and chimney filled with soot, so that the room was filled with smoke. This was again changed, so that now the building is heated by a round oak wood stove, and which works satisfactorily. This building is as well heated and ventilated as any in the township. The school attendance has averaged with the attendance of the other schools of the township. We enclose herewith the report of Dr. A. T. Crossett, township physician, who made an examination of the premises. Also a statement of the teacher who taught the school last year. When the complaint was filed with you, and examination of the premises made by your board, the old condition existed.

"Yours respectfully,

"(Signed) L. F. AVERS,

"Clerk."

"GIBSONBURG, OHIO, October 11, 1902.

"To the Board of Health, Madison Township, Gibsonburg, Ohio.

"GENTLEMEN:—By request of your clerk I went out to sub-district number four and examined the school house there as to sanitary conditions and ventilation and beg to leave to submit the following report:

"I found there a very tidy brick building 42 feet long by 28 feet wide, with good stone foundation and with holes in the wall for ventilation, there was a good tight and solid floor and wainscoting about three and one-half feet high around the sides and ends. Walls and ceilings had been recently papered. There were three windows in either side and two in each end of the building three and one-half by seven feet. These can be let down from the top or raised from the bottom by which means you can ventilate the room thoroughly. The door for entering was in the west end, on entering there was a hall and two cloak rooms. About the center of the large room sets a large round oak wood stove which when I was there was burning nicely and had a good draft. There was no smoke or dust coming from it and when doors were opened to put wood in there was no more smoke emitted than would be with any ordinary stove in a private house. The heat seemed to be thoroughly disseminated through the building and the teacher said she had no complaints to offer as it was perfectly satisfactory to her so far. In my opinion this school house is in as good a condition for lighting, heating, and ventilation as any in the district, and better than most others I have visited in the same district. I do not believe you need be alarmed about the children's health if you always keep the house in as good a condition as it is at present.

"Yours truly,

"(Signed) A. T. CROSSETT, M. D. AND TOWNSHIP PHYSICIAN."

REPORT OF AN INVESTIGATION OF AN OUTBREAK OF TYPHOID FEVER AT THE ST. ALOYSIUS ORPHANS' ASYLUM.

Dr. Byron Stanton, a member of the Board, was requested to investigate an outbreak of typhoid fever at the St. Aloysius Orphans Asylum. He visited the institution and on August 14, 1902, made the following report:

"The Asylum is situated near Bond Hill, Hamilton County. Its population is 25 adults and 216 children. There have been five cases of

typhoid fever in the institution this summer, the first occurring about July 1st; the second, July 15th; the third, late in July; the fourth, August 4th, and the fifth August 6th. All are children, four girls and one boy, and all have been in the Asylum for several months.

"The institution and its surroundings were in exceptionally good condition with the exception of a well to be noticed later. There are two sources of water supply. Nearly all of the water used comes from a six-inch tubed well, 167 feet deep.

"The stratum of gravel from which the water is obtained is overlaid with a thick stratum of blue clay. The water, of which about 7,000 gallons are used daily, is very hard; but the entire supply from this source is softened by the addition of lime to the water, after which it is pumped to a water tank in the attic, where it remains until used. This is the chief source of supply but an old well near the building is still in use. This is a dug well, 35 feet deep, containing at this time but about four feet of water. This source of supply is variable and the well is usually dry at this time of the year, but recently rains have kept the supply above the average for summer. None of the water from this well is used in the house, but being cooler than that from the deep well it is sometimes used for drinking. This well is so situated that it is more accessible for the girls, the boys seldom having access to this source of supply. The well is covered with two-inch planks, which have rotted on the edges so that water falling on the platform finds easy access to the well. The grading about the well is such that surface water seeps into it, as I demonstrated by pouring buckets of water on the ground. Last summer the water in the well became very offensive. It is not known by those in charge when the well was cleaned, but certainly not for several years. Samples of water for chemical and bacteriological examination were taken and sent to Mr. Horton.

"The situation and surroundings of the dug well are such that, without waiting for a report from Mr. Horton, I have condemned it and its use will be prohibited by those in authority at the Asylum.

"The entire milk supply is furnished by cows belonging to the Asylum. All of the milk utensils are washed with water from the deep well. I think there is no possibility of the typhoid outbreak being due to the milk supply.

"An outbreak of typhoid fever occurred in the Asylum several years ago, before the deep well was sunk, and rare cases have occurred since; but the dug well has been a source of drinking water supply every year.

"In my opinion the dug well is the source of the typhoid outbreak and I think its abandonment will arrest the disease."

Samples of water from these wells were collected by Dr. Stanton and shipped to the laboratory for examination. Mr. Horton, the Chemist, reported upon them as follows:

REPORT OF EXAMINATION OF WATER FROM ST. ALOYSIUS
ORPHAN'S ASYLUM.

Parts Per Million.

Source of Sample.	Dug Well.	Drilled Well.
Number of sample	2398.	2399.
Color ..	5.	8.
Turbidity ..	trace	none
Sediment ..	trace	none
Odor ..	none	x
Oxygen required	1.49	1.61
N. as ammonia free .....	.012	.....
N. as ammonia albuminoid .....	.064	.....
Nitrogen as nitrates	12.00	none
Nitrogen as nitrites .....	.012	.004
Chlorine ..	25.7	17.8
Alkalinity ..	224.	35.
Incrusting constituents	97.	none
Total solids ..	615.	.....
Bacteria per c. c.	2200.	22.
Colon bacilli present	Yes	No

"In sample No. 2398, from the dug well, the presence of intestinal bacteria, the number of bacteria, and the chemical findings—especially for nitrites, nitrates, and chlorine—indicate such pollution of this water as to cause its condemnation for domestic use. It will be noticed that the chlorides are nearly 50 per cent. higher than in the deep well water.

"In sample No. 2399, from the drilled well, the results indicate that this water is an acceptable one for domestic use. While the source of this water is a deep well, yet the sample was derived after the water had been pumped and softened. The low alkalinity and the absence of scale forming material, as shown by the incrusting constituent finding, show that the water had been successfully softened. There was not sufficient water to also include the determination for total solids."

The dug well was condemned.

REPORT ON AN INVESTIGATION OF WATERS IN CONNECTION WITH A PROPOSED IMPROVED WATER SUPPLY FOR TOLEDO.

The city of Toledo was anxious to secure an improved water supply, and was ready to take proper action to install such a supply as soon as the best source for it could be determined. Accordingly, a study of the Maumee River water as obtained at the intake of the Toledo water works was commenced. Later in the season, it was desired that waters from other sources be examined, and therefore analyses were made of samples from the Miami and Erie Canal, Swan Creek, Clark's Island and Corbutt's Island.

From May 3 to December 5, 1902, samples were collected daily or at intervals and shipped to the laboratory of the State Board of Health, where the analyses were made. The turbidity readings were made at Toledo by Mr. T. R. Cook or Mr. E. D. Lock, who also collected the samples. The city employed a commission of experts to report upon an improved supply. To this "Engineer's Commission" the results of our analyses were transmitted as an aid in formulating their report, and, therefore, it is unnecessary that any discussion in detail of the analytical findings be entered into here. The results of the analyses are included so that they may be recorded and made available for further reference.

METHODS OF ANALYSIS.

The only change in the methods previously used in this laboratory was the adoption of the phenoldisulphonic acid method for the determination of nitrogen as nitrates.

The turbidities were recorded in the Hazen reciprocal scale as reported from Toledo. The turbidity coefficient was obtained by dividing the weight of the suspended matter by the *turbidity expressed in parts per millions of silica*. The turbidity in terms of silica was obtained by conversion of the reciprocal readings according to the table of the U. S. Geological Survey. (Circular No. 8, Division of Hydrography, 1902.)

The *sedimentation* referred to in this investigation was obtained by thoroughly shaking the sample in the usual laboratory bottle (gallon size), and then allowing it to stand undisturbed for the time desired.

With some samples it was impossible in connection with other work, to make all of the customary determinations; and in such cases the work was restricted to a consideration of the suspended matter present. These partial analyses are grouped by themselves and are followed by the fuller analyses.

TABLE I—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM MAUMEE RIVER AT TOLEDO WATERWORKS, 1902.

PARTS PER MILLION.

Sample Number.	Date Collected.	Co-efficient of Turbidity.	Turbidity.	Total Solids.	Suspended Solids.
2191	May 13	1.04	.14	540	54
2193	May 15	1.30	.15	543	73
2194	May 16	.60	.16	521	36
2208	May 22	1.77	.14	552	92
2209	May 23	1.21	.19	535	88
2210	May 24	1.39	.20	525	107
2211	May 26	1.32	.25	484	129
2234	May 27	1.20	.27	457	130
2235	May 28	1.20	.25	503	118
2236	May 29	1.44	.25	555	141
2237	May 30	1.43	.25	528	140
2238	May 31	.77	.23	419	70
2244	June 2	.66	.25	418	65
2245	June 3	.91	.27	445	99
2261	June 4	1.01	.25	445	99
2262	June 6	1.06	.21	430	86
2263	June 7	.88	.20	407	68
2264	June 9	.92	.21	410	75
2273	June 12	.83	.17	437	53
2274	June 13	.70	.25	417	69
2305	June 19	.63	.30	376	77
2306	June 20	.59	.30	379	72
2309	June 21	.75	.25	384	73
2310	June 23	.74	.27	378	80
2335	July 3	.98	.60	613	304
2331	July 4	1.11	.50	557	264
2337	July 7	.70	.40	417	122
2344	July 9	.60	.25	379	59
2345	July 10	.81	.23	396	73
2352	July 12	.68	.20	379	52
2353	July 13	.80	.19	407	58
2355	July 14	.81	.18	394	55
2356	July 16	....	...	411	68
2358	July 17	1.22	.21	441	99
2359	July 19	.68	.27	412	73
2363	July 21	.88	.25	431	86
2364	July 22	1.01	.23	438	91
2368	July 23	.93	.23	453	84
2369	July 25	1.20	.19	461	87
2370	July 27	1.22	.18	493	83
2371	July 28	1.25	.19	510	91
2376	July 30	1.43	.16	534	86
2382	Aug. 4	....	.11	522	...
2383	Aug. 6	....	.12	480	...
2396	Aug. 11	....	.16	543	...
2397	Aug. 13	....	.14	545	...
2472	Sept. 7	.76	.23	483	68
2473	Sept. 8	.66	.21	479	53

TABLE II.—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM MAUMEE RIVER AT TOLEDO WATERWORKS, 1902.

PARTS PER MILLION.

Sample Number.	Date Collected.	Coefficient Turbidity.	Color.	Turbidity.	Sediment.	Odor.
2161	May 3	1.31	29	.10	slight	3 veg.*
2162	4	1.27	29	.095	"	2 veg.
2165	5	1.18	30	.15	"	2 veg.
2166	6	1.15	27	.13	"	2 veg.
2181	7	1.02	..	.15	"	2 veg.
2182	8	2.02	..	.11	"	2 veg.
2185	9	1.10	32	.13	"	2 veg. and earthy.
2186	10	.77	30	.17	"	2 veg.
2189	11	1.17	28	.13	"	2 sour.
2190	12	1.10	31	.11	"	2 veg.
2192	14	1.56	..	.14	.....	1 sour.
2195	17	1.04	34	.14	slight	3 veg.
2196	18	1.02	31	.14	"	3 veg.
2265	June 10†	1.16	60 ?	.25	decided	3 earthy and veg.
2266	10†		60 ?	...	"	3 peculiar.
2279	14	.87	50	.30	"	3 veg. and earthy.
2280	16	.79	40	.35	"	3 veg. and earthy.
2318	25	.93	40 ?	.25	"	3 earthy.
2319	26	1.07	40 ?	.25	"	3 earthy.
2322	29	.64	80 ?	.27	"	3 veg.
2323	30	.71	50	.35	"	3 veg.
2329	July 1	1.13	90 ?	.25	"	3 earthy.
2330	2	1.14	110 ?	.70	considerable	4 earthy and veg.
2377	Aug. 2	2.02	50	.12	decided	2 earthy.
2389	8	....	40	.14	"	3 earthy.
2390	9	....	43	.16	"	earthy and veg.
2520	Sept. 12	.78	35	.20	"	3 veg.
2521	13	.79	30	.19	slight	3 veg.
2541	24	.47	40	.23	very slight	3 earthy.
2542	25	.59	35 ?	.21	" "	earthy.
2549	28	.58	30 ?	.70	distinct	3 earthy.
2550	30	.86	35 ?	.45	"	3 earthy.
2604	Nov. 10	.78	30	.16	slight	3 earthy and veg.
2613	12	1.03	30	.17	"	2 earthy and veg.
2615	14	.61	28	.17	"	3 earthy.
2625	20	1.28	33	.16	"	3 earthy and veg.
2640	27	....	55	.19	.....	3 veg. and peculiar.
2651	Dec. 4	.83	..	.17	.....
Average..		1.00†	42	.225†		

† Including results from Table 1.

* The numerals prefixed to the odor signify intensity—1, very faint; 2, faint; 3, distinct; 4, decided; 5, very strong.

† Collected at 10 A. M. ‡ Collected at 4 P. M. Strong west wind.

TABLE II.—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM MAUMEE RIVER AT TOLEDO WATERWORKS, 1902.

PARTS PER MILLION.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incrusting Constituents.	Total Solids.	Loss on Ignition.	Suspended Solids.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.						
7.50	.280	.104	.016	2.00	65.5	141	79	505	178	46
7.60	.276	.088	.016	1.80	65.4	140	91	509	180	42
7.35	.312	.078	.016	1.80	66.3	139	90	529	178	66
7.76	.334	.046	.016	1.80	76.7	223	81	535	189	55
....	....	....	....	....	69.0	159	77	542	191	57
....	....	....	....	....	87.5	172	77	595	212	81
8.62	.302	.078	.020	1.70	84.3	167	91	579	213	53
8.22	.316	.056	.020	1.70	85.2	165	93	573	211	49
7.44	.332	.106	.026	2.20	90.1	163	93	584	215	56
7.68	.320	.088	.026	2.40	95.7	161	91	578	211	44
....	....	....	....	....	....	....	..	540	217	81
8.79	.324	.134	.030	2.40	83.7	156	89	556	...	54
9.08	.384	.140	.026	2.20	88.5	155	77	566	...	53
13.41	.402	.108	.040	2.60	34.6	138	64	470	...	114
13.94	.370	.061	.024	2.90	34.5	149	60	473	...	114
11.49	.290	.044	....	2.80	19.8	128	51	420	...	107
11.92	.342	.052	....	2.70	15.3	117	38	415	...	119
12.00	.288	.056	.050	2.20	11.3	141	50	369	...	91
11.11	.446	.060	.012	2.00	12.7	142	50	391	...	105
12.73	.442	.122	.100	3.00	12.0	137	47	379	...	69
13.18	.562	.068	trace	3.50	63.0	125	72	511	...	107
12.00	.540	.132	.064	3.20	54.6	131	59	524	...	111
17.92	.724	.050	.080	3.60	23.9	96	59	740	...	438
10.02	.426	.118	.020	.40	91.3	186	164	586	...	87
9.09	.352	.160	.040	.30	68.6	168	41	511	...	....
9.86	.442	.130	.034	.30	63.2	168	40	497	...	....
9.58	.342	.074	.040	none	75.5	155	none	488	...	60
9.64	.312	.044	none	none	82.8	151	48	504	...	58
10.10	.356	.208	.050	none	82.5	153	62	502	...	42
9.11	.342	.068	none	none	93.6	147	65	522	...	48
15.08	.416	.032	.040?	1.80	37.0	102	47	495	...	222
13.39	.394	.040	.040?	1.80	22.4	107	19	426	...	177
4.24	.360	.034	.003	trace	41.6	188	65	423	159	47
8.64	.408	.054	.001	trace	55.5	188	62	524	185	66
7.65	.354	.058	trace	trace	55.4	186	64	454	136	39
8.60	.248	.034	.002	.60	74.0	217	70	569	200	77
10.41	.248	.048	.004	1.70	89.6	169	71	499	164	....
.....	....	....	....	....	62.0	176	72	506	164	53
10.15	.370	.082	.027	1.63	60.4	154	67	484†	188	90†

TABLE II.—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM TOLEDO, 1902.—MIAMI AND ERIE CANAL.

PARTS PER MILLION.

Sample Number.	Date Collected.	Coefficient Turbidity.	Color.	Turbidity.	Sediment.	Odor.
2605	Nov. 10	.65	20	.20	slight	3 earthy and veg.
2612	12	.87	25	.20	"	2 earthy and veg.
2617	14	.39	24	.20	"	3 veg. and stale.
2624	20	.79	25	.19	"	3 veg.
2639	27	....	55	.20	"	3 veg. and peculiar.
Average..		.68	30	.20		

SWAN CREEK.

2611	Nov. 12	1.74	25	.09	slight	1 earthy.
2616	14	....	24	....	"	2 veg.
2623	20	....	20	....	"	2 veg.
2638	27	....	26	....	very slight	2 veg.
2650	Dec. 4	....	..	....
Average..		.....	24			

WELLS ON CLARK'S ISLAND.

2622	Nov. 19	....	30	....	decided	1 earthy.
2631	22	....	25	.80	"	none.
2647	Dec. 2	....	18	.70	"	none.
2649	3	.52	..	.70	
2652	5	.18	..	.70	
Average..		24	.72		

GRIFFIN WELL.

2610	Nov. 12	12	none	trace	none.
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TABLE II—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM
TOLEDO, 1902.—MIAMI AND ERIE CANAL.

PARTS PER MILLION.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incrusting Constituents.	Total Solids.	Loss on Ignition.	Suspended Solids.	Iron.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.							
7.89	.326	.026	.001	trace	57.4	193	76	498	200	50	...
8.27	.256	.036	.001	trace	74.8	195	55	553	196	67	...
8.94	.326	.074	trace	.20	66.0	202	74	531	170	30	...
7.54	.344	.020	none	1.10	90.4	219	82	595	199	58	.9
9.76	.308	.038	.002	1.20	76.0	170	63	492	154	...	...
8.48	.312	.039	.001	.50	72.9	196	70	534	184	51	...

SWAN CREEK.

5.73	.220	.028	trace	none	7.4	177	21	334	132	54	...
7.00	.202	.022	trace	trace	10.4	186	30	307	115	8	...
6.45	.194	.028	.003	trace	8.8	195	34	349	135	33	.8
4.98	.178	.022	trace	2.00	8.8	190	36	332	120	..	...
....	....	....	....	....	9.4	172	40	388	104	61	*
6.04	.198	.025	.001	.50	9.0	184	32	342	121	39	

WELLS ON CLARK'S ISLAND

14.00	.332	1.250	none	none	33.2	467	17	721	212	119	16.5
14.24	.552	1.260	none	none	32.5	467	29	723	159	...	17.0
13.34	.238	1.300	.002	trace	20.2	570	..	760	...	...	15.0
.....	.....	.....	.....	.....	37.5	461	40	844	244	200	.....
.....	.....	.....	.....	.....	36.7	451	39	715	205	58	27.0
13.86	.374	1.270	.001	none	32.0	483	31	753	205	129	18.9

GRIFFIN ISLAND.

1.31	.070	.014	none	2.60	1.8	29	8	101	32	..
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* Trace.

TABLE II—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM
TOLEDO, 1902.—Concluded.

CORBUTT ISLAND.

Parts per Million.

Sample Number.	Date Collected.	Coefficient Turbidity.	Color.	Turbidity.	Sediment.	Odor.
2577	Oct. 17	....	18	.90	decided	2 earthy.

TABLE II—RECORD OF CHEMICAL EXAMINATIONS OF SAMPLES FROM
TOLEDO, 1902.—Concluded.

CORBETT ISLAND.

Parts per Million.

Oxygen Required.	Nitrogen as				Chlorine.	Alkalinity.	Incrusting Constituents.	Total Solids.	Suspended Solids.	Iron.
	Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.						
10.65	.292	1.030	none	none	49.5	449	33	673	208	25

TABLE III.—TABLE SHOWING AMOUNT OF TOTAL SUSPENDED MATTER IN WATER FROM MAUMEE RIVER AT TOLEDO.

Suspended Matter, Parts Per Million.	Number of Samples.	Percentage of Samples
Less than 36	none	none
36—50	9	11.4
51—100	51	64.6
101—200	15	18.9
201—400	3	3.8
More than 400.....	1	1.3
	79	100.0

TABLE IV.—TABLE SHOWING AMOUNT OF SUSPENDED MATTER IN WATER FROM MAUMEE RIVER AT TOLEDO AFTER 24 HOURS SEDIMENTATION.

Suspended Matter, Parts Per Million.	Number of Samples.	Percentage of Samples
Less than 10.....	5	7.3
11—30	21	30.9
31—50	24	35.3
51—70	14	20.6
71—86	4	5.9
More than 86	none	none
	68	100.0

TABLE V.—TABLE SHOWING REDUCTION OF SUSPENDED MATTER BY SEDIMENTATION.

Length of Sedimentation.	Percentage of Removal in		
	Maumee R.	M. & E. Canal.	Swan Creek.
24 hours.	61.3a	42.4c	88.4d
48 hours.	68.6b		

a, 68 samples; b, 38 samples; c, 4 samples; d, 4 samples.

TABLE VI.—TABLE SHOWING DIFFERENCE IN CHLORINE OF MAUMEE RIVER AT TOLEDO AND WATERVILLE.

Parts per Million.

Date of Sample.	Toledo.	Waterville.
August 25	60.8	74.4
August 26	58.4	76.4
August 27	68.2	90.8
August 28	65.4	95.0
August 29	63.2	99.4
August 30	64.8	112.4

EXAMINATIONS

MADE IN THE

LABORATORY

OF THE

Ohio State Board of Health

During the Year 1902.

WORK OF THE LABORATORY.

The work of the Laboratory has been done by Mr. Elmer G. Horton, Chemist and Bacteriologist, in charge of the Laboratory, and Mr. Homer D. Williamson. Most of the examinations were samples of water. A number of wells were examined suspected to have caused typhoid fever, and many of these were condemned and closed.

The number of examinations made during the year, January 1 to December 31, 1902, was 1,260. The nature and results of these examinations are given in tabular form farther on.

Included in the laboratory work is a special report by Mr. Horton of a study of the water supply of Toledo. This was made at the request of the Water Works Department of Toledo, and was directed towards aiding them in determining how best to improve the present supply.

The expenses during the year were as follows:

Salaries	\$2,780 00
Apparatus, supplies, incidentals	223 91
Carpentering and plumbing	52 50
Traveling expenses	130 15
	<hr/>
	\$3,186 56

DIPHTHERIA EXAMINATIONS.

Case Number.	Place.	Collected			Patient's.			Physician's Diagnosis.	Membrane Present.	Day of Disease.	Result.	Remarks.
		Month.	Day.	Age.	Sex.	Color.	Temperature.					
105	Antwerp	11	3	12	F.	White	104	Diphtheria	Yes	4	+	Examination not satisfactory.
145	Gallon	2	6	3	M.	White	101	Suspected diphtheria	Yes	1	+	
148	Gallon	3	9	19	F.	White	101 3/4	Diphtheria	Yes	4	+	
171	Gallon	11	26	67	M.	White	99	Suspected diphtheria	Yes	3	+	
172	Gallon	12	10	67	F.	White	100	"	Yes	3	+	
180	Jamestown	13	23	19	F.	White	102	Tonsillitis	Yes	5	+	
188	Logan	11	12*	a	a	a	a	"	a	a	+	
170	McConnellsville	11	18	14	M.	White	102	Diphtheria	Yes	7	+	
162	Montpelier	10	23	8	F.	White	normal	Tonsillitis	Slight	3	+	
164	Montpelier	10	27	a	F.	White	100%	Follicular tonsillitis	Yes	7	+	
160	Mt. Sterling	10	11	38	M.	White	103	Diphtheria	Yes	1	+	+As complication of typhoid fever.
161	Mt. Sterling	10	16	12	F.	White	103	Follicular tonsillitis	no	15	+	
163	Mt. Sterling	10	27	30	M.	White	104	"	Yes	10	+	
165	New Lexington	6	18	12	F.	White	101 3/4	Diphtheria	Yes	1	+	
155	New Lexington	7	2	24	F.	White	103	"	Yes	3	+	
152	New Paris	4	2	40	F.	White	103 1/2	"Not positive"	Yes	a	+	
166	North Lewisburg	11	10*	a	a	a	a	"	a	a	+	
167	North Lewisburg	11	10*	a	a	a	a	Diphtheria	Yes	a	+	
168	Roxbury	8	16	12	F.	White	103	"	Yes	2	+	
169	Urichsville	11	17	9	F.	White	a	Diphtheria	Yes	4	+	
157	Waterford	1	4	10	a	a	a	Diphtheria	Yes	2	+	
144	Zanesville	1	13	24	M.	White	101 1/2	Follicular tonsillitis	Yes	1	+	+As complication of typhoid fever.
146	Zanesville	2	25	60	F.	White	103	Diphtheria	Yes	2	+	
147	Zanesville	2	21	6	M.	White	103	"	Yes	1	+	
149	Zanesville	3	1	13	F.	White	102	Follic. tonsillitis then dipl.	Yes	3	+	
151	Zanesville	3	29	29	F.	White	a	Diphtheria (?)	Yes	2	+	
153	Zanesville	5	2	4	F.	White	103	Follicular tonsillitis (†)	Yes	8	+	
154	Zanesville	5	2	6	F.	White	102	Diphtheria (?)	Yes	2	+	
155	Zanesville	5	26	6	F.	White	a	Diphtheria	Yes	a	+	
159	Zanesville	9	4	9	M.	a	normal	"	Yes	a	+	

S suspicious.

a Unreported. * Date received. 29 samples; 20 positive; 8 negative; 1 unsatisfactory.

MISCELLANEOUS EXAMINATIONS.

Case No.	Place.	Number Samples.	Nature of Sample.	Examined for.	Remarks.
84	Burton	1	Ice	Quality	Usable.
87	Coshocton	1	Dog's head....	Rabies	Rabies.
74	Findlay	2	Milk	Tubercle bacilli....	Not found to be pres- ent.
72	Frankfort	1	Water	"Worms"	Cyclops present.
76	Fremont	1	Cream	Preservative and adulterations ..	Not found.
79	Jamestown	2	From human finger	Tubercle bacilli....	Not found.
21*	Logan	1	Sputum	Tubercle bacilli....	Not found.
85	North Baltimore.	1	Cow's head ..	Rabies	Rabies.
71	Plain City	1	Blood from horse	Bacteria	Found <i>s. p. aureus</i> et al.
86	Tiro	1	Pus	Tubercle bacilli....	Not found.
16, 20*	Tiro	2	Sputum	Tubercle bacilli....	Present.
26*	Tiro	1	Sputum	Tubercle bacilli....	Not found.
73	Uhrichsville ..	1	Ice	Quality	Usable.
18, 23*	Washington C H	2	Sputum	Tubercle bacilli....	Present.
17*	Washington C H	1	Sputum	Tubercle bacilli....	Not found.
25*	Waterford	1	Sputum	Tubercle bacilli....	Not found.
77	Wellington	1	Ice	Quality	Usable.
78	Xenia	3	Milks and cream	Formaldehyde	Present in all.
80-83	Zanesville	4	Ice	Quality	2 good; 2 undesirable
19, 22, 24*	Zanesville	3	Sputum	Tubercle bacilli ..	Present in all.
92-108	.....	17	Commercial product and apparatus for disinfection	.....	.....
115-120	.....	6	Vaccines	Efficiency claimed. Pyogenic bacteria.	Inefficient. <i>S. p. aureus</i> in 1. <i>S. p. albus</i> in 1. Not found in 4.
2525-6§	.....	2	Water before and after passage through a domestic fil- ter. ..	Bacterial efficiency	9 per cent. of bacteria were removed.
2530-1§	.....	2	Same	Same	No. of bacteria in- creased 50 per cent.
2538-9§	.....	2	Same	Same	No. of bacteria greatly increased.

§ Water samples.

* Case numbers refer to tuberculosis record.

EXAMINATIONS OF WATERS.

a. PROPOSED PUBLIC WATER SUPPLIES.

During the year 1902, examinations have been made of 165 samples of water in connection with sources proposed as public supplies or as additions to existing supplies. These samples have come from twenty-seven cities and villages as follows:

Place.	Number of Samples.	Source of Samples.
Ada	1	Drilled well.
*Bellefontaine	1	Driven well.
Canal Fulton	1	Spring.
*Canton	1	Deep well.
*Columbus, State Hospital	1	Drilled well.
Columbus Grove	1	Drilled well.
Findlay	14	Drilled wells, 10; springs, 3; cave, 1.
Freeport	3	Drilled wells.
Gambier	1	Drilled well.
*Glouster	3	Air shaft of mine.
*Lancaster	2	Driven wells.
Loudonville	2	Drilled wells.
*Mineral City	1	Driven well.
Mt. Gilead	1	Drilled well.
New Bremen	1	Drilled well.
Newcomerstown	2	Driven wells.
New Vienna	1	Drilled well.
Paulding	1	Drilled well.
Plymouth	1	Drilled well.
*Salem	1	Artesian well.
*Sebring	3	Mahoning River.
*Shreve	2	Drilled well; spring.
Toledo	115	Maumee River, Swan Creek, canal, wells.
*Upper Sandusky	1	Drilled well.
Westerville	1	Drilled well.
West Milton	1	Spring.
Wilmington	2	Drilled wells.

*Proposed as additions to the existing supplies.

The analytical results for the foregoing samples will be found in the section devoted to Reports on Proposed Public Water Supplies.

b EXISTING PUBLIC WATER SUPPLIES.*

During the year 152 samples of water have been examined from the following cities and villages in connection with the present public water supplies of those places.

*Including institutions.

WATER SUPPLY OF BELLEFONTAINE.

The supply is derived from a series of deep wells.

On account of the presence of typhoid fever in the city, the Board of Health requested an examination of the city water. A sample of water was taken from a hydrant on North Detroit street and on analysis proved to be a satisfactory water.

EXAMINATION OF WATER FROM BELLEFONTAINE.

Parts per Million.

Number of Sample.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia	Nitrites.	Nitrates.
2467	Sept. 6	12.	none	none	none	.019	.018	trace	none

Number of Sample.	Oxygen required.	Chlorine.	Incrusting constituents.	Residue on evaporation.		Bacteria.	
				Total.	Loss on ignition.	No. per c. c.	Intestinal bacteria present.
2467	1.67	1.2	17.	388.	66.	400.	No.

WATER SUPPLY OF ST. ALOYSIUS ORPHAN ASYLUM, BOND HILL.

(See special report.)

WATER SUPPLY OF CHILLICOTHE.

The source of supply for this city is a large dug well in the bottom of which several eight-inch wells have been drilled. Complaints had

been made concerning the quality of the water, and especially of the taste and odor; accordingly, at request of the Mayor, examinations were made of samples from the reservoir (No. 2275), to which the water is pumped from the well, as well as samples from the well at the pumping station (No. 2276) and from a hydrant (No. 2277). The water from the well had a sulphurous odor which disappeared subsequently. Water supplied directly to consumers without going to the reservoir would give rise to some complaint. Attention was called to the advisability of learning if the slight pollution of the reservoir water could be due to sewage from human beings.

The analysis for No. 2275 is incomplete as part of the sample was lost in transit.

EXAMINATION OF WATERS FROM CHILLICOTHE.

Parts per Million.

Sample Number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.
2275	June 16	7	none	none	none	.....	.....	none	none
2276	June 16	35	distinct	slight	sulphurous	.034	.021	trace	none
2277	June 16	12	slight	trace	trace	.051	.054	none	none

Sample Number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation.		Bacteria.		Iron.
					Total.	Loss on ignition.	No. per c. c.	Colon present.	
2275	.....	10.4	.....	.....	.....	.....	550	Yes	.....
2276	.77	15.3	270.	74.	471.	88	4	No	1.6
2277	.86	10.7	247.	53.	412.	95	29	No	.6

WATER SUPPLY OF COLUMBUS.

The supply of this city is derived from a system of driven wells and filter galleries. In addition water is taken directly from Alum Creek and Scioto River. Analyses were made at various dates as follows:

BACTERIOLOGICAL EXAMINATIONS OF COLUMBUS WATER FROM A
FAUCET IN THE LABORATORY OF THE O. S. B. OF H.

Sample Number.	Date collected.	Hour.	Appearance of Sample.	No. of bacteria per c. c.	Remarks.
2058	Jan. 6.....	2:45 p. m.	Clear.....	160	{ Colon present. Chemical analysis.
2060	Jan. 7.....	10:30 a. m.	Nearly clear....	2,400	
2061	Jan. 8.....	7:45 a. m.	Nearly clear....	1,200	
2062	Jan. 8.....	8:45 a. m.	Nearly clear....	1,500	
2065	Jan. 9.....	1:45 p. m.	Clear.....	700	
2066	Jan. 10.....	8:30 a. m.	Nearly clear....	1,400	N. as nitrites .048.
2068	Jan. 11.....	8:30 a. m.	Nearly clear....	1,500	N. as nitrates 4.20.
2069	Jan. 13.....	9:00 a. m.	Clear.....	2,800	{
2070	Jan. 14.....	4:20 p. m.	Clear.....	1,100	
2071	Jan. 17.....	3:00 p. m.	Clear.....	800	
2074	Jan. 22.....	12:15 p. m.	Clear.....	225	
2075	Jan. 30.....	4:15 p. m.	Clear.....	2,700	
2078	Jan. 31.....	3:45 p. m.	Clear.....	3,400	{
2079	Feb. 3.....	2:30 p. m.	Clear.....	2,300	
2081	Feb. 5.....	3:00 p. m.	Clear.....	6,500	
2082	Feb. 6.....	1:45 p. m.	Clear.....	3,600	
2086	Feb. 7.....	Clear.....	5,200	Chemical analysis.
2089	Feb. 11.....	11:00 a. m.	Clear.....	1,500	{
2090	Feb. 12.....	4:00 p. m.	Clear.....	1,100	
2092	Feb. 13.....	4:30 p. m.	Clear.....	600	Chemical analysis.
2094	Feb. 14.....	1:00 p. m.	Clear.....	230	{
2095	Feb. 15.....	8:30 a. m.	Clear.....	550	
2096	Feb. 17.....	11:00 a. m.	Clear.....	1,100	
2100	Feb. 18.....	9:30 a. m.	Clear.....	1,100	
2101	Feb. 18.....	10:30 a. m.	Floating matter.	1,300	
2102	Feb. 20.....	9:00 a. m.	Floating matter.	1,500	{
2103	Feb. 20.....	10:00 a. m.	Sediment.....	1,000	
2106	Feb. 21.....	12:00 noon	Clear.....	1,100	
2107	Feb. 24.....	9:30 a. m.	Hazy	7,000	
2108	Feb. 26.....	11:30 a. m.	Roily.....	5,900	Colon present.
2110	Feb. 27.....	4:30 p. m.	Faint hazy.....	2,600	Colon present.
2112	March 4.....	9:00 a. m.	Faint hazy.....	7,000	Colon present.
2113	March 5.....	10:30 a. m.	Faint hazy.....	7,500	Colon present.
2114	March 6.....	9:00 a. m.	Cloudy	4,300	Colon present.
2115	March 10.....	9:30 a. m.	Faint hazy.....	4,800	{
2120	March 11.....	10:00 a. m.	Faint hazy.....	7,400	Colon not found.

BACTERIOLOGICAL EXAMINATIONS OF COLUMBUS WATER FROM A FAUCET IN THE LABORATORY OF THE O. S. B. OF H.—Continued.

Sample number.	Date collected.	Hour.	Appearance of Sample.	No. of bacteria per c. c.	Remarks.
2126*	March 13.....	1:30 p. m.	Faint hazy.....	2,300	Colon present.
2128	March 14.....	11:00 a. m.	Faint hazy.....	650	
2130*	March 18.....	8:00 a. m.	Faint hazy.....	1,650	Colon present.
2140	March 25.....	12:30 p. m.	Nearly clear.....	600	
2141	March 27.....	9:00 a. m.	Nearly clear.....	650	
2142	March 31.....	8:30 a. m.	Cloudy	1,000	
2146	Apr. 15.....	2:00 p. m.	Clear.....	850	Colon not found.
2153	Apr. 24.....	2:00 p. m.	Hazy	850	Colon present.
2159	Apr. 25.....	4:00 p. m.	Hazy	650	Colon not found.
2160	May 5.....	4:00 p. m.	Cloudy	180	Colon not found.
2164	May 7.....	4:00 p. m.	Hazy	475	Colon present.
2167	May 8.....	2:00 p. m.	Hazy	650	Colon present.
2183	May 10.....	9:00 a. m.	Faint hazy.....	400	Colon present.
2188	May 14.....	4:30 p. m.	Nearly clear.....	950	
2199	May 20.....	9:00 a. m.	Roily	400	
2203	May 21.....	10:00 a. m.	Hazy	500	
2206	May 23.....	10:00 a. m.	Faint hazy.....	1,000	Colon present.
2213	May 28.....	9:15 a. m.	Nearly clear.....	650	
2239	June 3.....	4:00 p. m.	Nearly clear.....	275	
2243	June 4.....	9:00 a. m.	Cloudy	700	
2252	June 5.....	10:00 a. m.	Cloudy	300	Colon present.
2260	June 7.....	9:00 a. m.	Nearly clear.....	275	Colon present.
2268	June 12.....	4:00 p. m.	Nearly clear.....	230	Colon present.
2270	June 13.....	4:30 p. m.	Faint hazy.....	700	
2271	June 14.....	7:45 a. m.	Faint hazy.....	2,000	
2278	June 16.....	3:00 p. m.	Faint cloudy....	750	
2281	June 17.....	8:30 a. m.	Faint cloudy....	1,750	Colon present.
2289	June 18.....	9:30 a. m.	Faint hazy.....	600	Colon present.
2302	June 19.....	1:30 p. m.	Faint hazy.....	700	Colon present.
2303	June 20.....	4:00 p. m.	Faint hazy.....	800	Colon present.
2304	June 21.....	6:15 a. m.	Faint hazy.....	1,100	Colon present.
2308	June 23.....	10:45 a. m.	Cloudy	450	Pressure weak
2311	June 25.....	9:00 a. m.	Clear.....	450	Colon not found.
2317	June 27.....	8:00 a. m.	Clear.....	375	Colon present.
2339	July 9.....	.....	.....	400	
2346	July 11.....	.....	.....	425	
2351	July 15.....	1:30 p. m.	Faint cloudy....	650	
2354	July 17.....	9:00 a. m.	Nearly clear.....	250	Colon present.
2357	July 18.....	2:00 p. m.	Nearly clear.....	350	Colon present.
2362	July 23.....	2:30 p. m.	Cloudy	1,500	
2366	July 24.....	10:30 a. m.	Cloudy	1,300	
2367	July 26.....	9:30 a. m.	Cloudy	550	
2372	July 29.....	10:00 a. m.	Cloudy	1,600	Colon present.

* Sample taken at 715 North High St.

BACTERIOLOGICAL EXAMINATIONS OF COLUMBUS WATER FROM A
FAUCET IN THE LABORATORY OF THE O. S. B. OF H.—Concluded.

Sample number.	Date collected.	Hour.	Appearance of Sample.	No. of bacteria per c. c.	Remarks.
2374	July 30.....	11:15 a. m.	Faint Cloudy....	1,200	Colon present.
2375	Aug. 1.....	10:00 a. m.	Cloudy	1,300	Colon present.
2378	Aug. 2.....	2:00 p. m.	Faint hazy.....	500	Colon present.
2379	Aug. 4.....	2:00 p. m.	Faint hazy.....	1,600	Colon present.
2380	Aug. 5.....	10:00 a. m.	Faint hazy.....	700	Colon present.
2381	Aug. 6.....	10:15 a. m.	Cloudy	2,100	{ Chemical analysis Colon present
2384	Aug. 8.....	3:00 p. m.	Cloudy	750	Colon present.
2387	Aug. 11.....	11:00 a. m.	Faint hazy.....	1,900	Colon present.
2391	Aug. 12.....	9:00 a. m.	Faint hazy.....	1,250	Colon present.
2394	Aug. 13.....	2:00 p. m.	Faint hazy.....	425	Colon present.
2395	Aug. 14.....	11:00 a. m.	Faint hazy.....	425	Colon present.
2400	Aug. 15.....	9:00 a. m.	Faint hazy.....	1,100	Colon present.
2403	Aug. 16.....	9:00 a. m.	Faint hazy.....	600	Colon present.
2416	Aug. 19.....	9:30 a. m.	Faint hazy.....	400	Colon present.
2418	Aug. 21.....	8:30 a. m.	Cloudy	425	Colon present.
2423	Aug. 27.....	8:30 a. m.	Hazy	400	Colon present.
2431	Aug. 28.....	11:00 a. m.	Hazy	200	Colon not found.
2439	Aug. 29.....	10:30 a. m.	Hazy	300	Colon present.
2440	Sept. 1.....	9:00 a. m.	Nearly clear....	275	
2453	Sept. 4.....	8:45 a. m.	Nearly clear....	800	Colon present.
2468	Sept. 6.....	11:30 a. m.	Nearly clear....	11,000	Colon present.
2469	Sept. 8.....	9:30 a. m.	Nearly clear....	500	
2510	Sept. 11.....	5:00 p. m.	Nearly clear....	500	Colon not found.
2524	Sept. 16.....	2:45 p. m.	Nearly clear....	350	Colon present.
2532	Sept. 22.....	9:00 a. m.	Cloudy	800	Colon present.
2535	Sept. 23.....	4:00 p. m.	Nearly clear....	375	Colon present.
2537	Sept. 24.....	2:00 p. m.	Hazy	300	Colon present.
2551	Oct. 4.....	8:30 a. m.	Faint hazy.....	1,200	Colon present.
2555	Oct. 6.....	9:30 a. m.	Nearly clear....	750	Colon present.
2560	Oct. 7.....	9:15 a. m.	Nearly clear....	675	Colon present.
2572	Oct. 14.....	9:15 a. m.	Hazy	1,100	{ Chemical analysis. Colon present.
2576	Oct. 17.....	10:00 a. m.	Hazy	1,650	Colon present.
2593	Nov. 3.....	10:00 a. m.	Hazy	350	Chemical analysis.
2601	Nov. 7.....	3:30 p. m.	Clear.....	950	Colon not found.
2630	Nov. 25.....	3:00 p. m.	Nearly clear....	1,100	Colon not found.
2659	Dec. 23.....	4:00 p. m.	Nearly clear....	3,200	Colon present.

From the preceding table we obtain the following data concerning the bacterial character of the Columbus water supply arranged by months.

The average number of bacteria per c c is obtained by taking the average of such findings as were obtained during the month.

BACTERIAL FINDINGS, COLUMBUS WATER SUPPLY.

Month.	No. of Examinations.	Maximum Bacteria per c c.	Minimum bacteria per c c.	Average per c c.
January	13	3400	160	1530
February	18	7000	230	2454
March	11	7500	600	3445
April	3	850	650	783
May	9	1000	180	578
June	16	2000	230	716
July	10	1600	250	822
August	17	2100	200	437
September	9	11000	275	1655
October	5	1650	675	1075
November	3	1100	350	800
December	1	3200	3200	3200

Daily average per c c for all examinations 1413.

Of the 115 samples examined bacteriologically, 70 were examined for intestinal bacteria. Colon bacilli were found in 61 of the samples and were not found in nine samples, or in other words intestinal bacteria were found in 87 per cent. of the samples examined.

CHEMICAL EXAMINATIONS OF WATERS FROM COLUMBUS.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites.	Nitrates.
2060	Jan. 7	23	V. S.	trace	earthy	.196	.036	.070	6.40
2086	Feb. 7	22	V. S.	V. S.	none	.092	.024	.005	1.00
*2091	Feb. 13	17	9	trace	faint veg.	.149	.034	.000	1.00
2092	Feb. 13	17	11	trace	faint veg.	.126	.042	trace	1.20
2243	June 4	28	35	slight	earthy	.276	.023	.000	tr.
2361	July 22	32	150	decided	vegetative	.242	.066	.003	.90
2381	Aug. 6	40	110	decided	ft. sweetish	.302	.036	.002	1.50
2572	Oct. 14	28	35	slight	earthy	.196	.050	.006	2.20
2593	Nov. 3	28	28	slight	ft. earthy	.246	.036	.002	1.50

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation		Iron.
					Total	Loss on ignition.	
2060.....	5.41	7.5	205	232	905	174	.....
2086.....	2.93	6.0	256	200	835	208	.7
*2091.....	3.67	6.7	268	196	831	179	.7
2092.....	2.81	8.6	267	209	849	177	.9
2243.....	5.16	8.4	192	141	612	145	.....
2361.....	5.00	11.8	220	168	639	.....	.....
2381.....	8.15	5.4	223	255	582	.....	.....
2572.....	5.17	7.8	225	161	656	89	.....
2593.....	5.17	5.5	220	194	682	.....	.....

* Sample No. 2091 was collected from Scioto River at the mouth of the intake to the waterworks.

The following partial analyses were also made:

Sample number.	Collected.	Chlorine.	N. as Nitrites.	N. as Nitrates.
2061.....	Jan. 8, 7:45 A. M.	9.0	.070	5.90
2062.....	Jan. 8, 8:45 A. M.	9.0	.066	5.80
*2063.....	Jan. 9	3.1	.056	5.00
†2064.....	Jan. 9	7.4	.003	trace
2065.....	Jan. 9	9.2	.066	4.70

* Sample collected at 322 Marshall Avenue.

† Sample collected at 175 North Nineteenth Street.

All samples of Columbus water not otherwise specified were taken from a faucet in the Laboratory of the Ohio State Board of Health.

WATER SUPPLY OF CONNEAUT.

See elsewhere in this volume for a special report on Typhoid Fever at Conneaut.

WATER SUPPLY OF COSHOCTON.

The supply is derived from a dug well some 35 feet in diameter and 41 feet deep.

On account of the presence of typhoid fever in Coshocton, a request was made by the local board of health for an examination of the water of the public supply. One sample was received from the large well whence the supply is derived, and a second sample was received from a faucet in the town. The analyses indicated a good water and one not causing typhoid fever. Attention was called to the advisability of no longer allowing the land in the immediate vicinity of the wells to be used for the pasturing of animals.

EXAMINATION OF WATER FROM COSHOCTON.

PARTS PER MILLION.

Sample number.	Collected.	Color	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2594	Nov. 3	trace	none	none	faint oily	.032	.019	none	trace
2595	Nov. 3	trace	none	none	faint oily	.038	.007	trace	trace

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation.		Bacteria	
					Total.	Loss on ignition.	No. per c. c.	Colon present in 50 c. c.
2594	.64	20.0	180	33	290	.....	7	yes
2595	.53	20.3	181	26	294	.....	19	no

WATER SUPPLY OF DAYTON.

The supply for this city is derived from a series of driven wells varying from 45 to 65 feet in depth. The local board of health asked for an

examination of the water as to quality. A sample of water was received from the pumping station and showed by analysis that the water was potable.

EXAMINATION OF WATER FROM DAYTON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2417	Aug. 20	8	none	none	none	.039	.042	none	2.10

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting Constituents.	Residue on evaporation.		Bacteria.	
					Total.	Loss on ignition.	No. per c. c.	Colon present
2417	.70	10.2	273	15	427	86	13	no

WATER SUPPLY OF LEBANON.

This supply is derived from six 6-inch driven wells from 96 to 104 feet in depth. The local board of health requested an examination of the water of the public supply to determine its quality. The sample was taken from a hydrant, and proved to be a potable water. The sample was not collected in a laboratory container and accordingly no quantitative bacteriological examination was made. The amount of iron may be expected to cause some complaint if pumped to the consumer without opportunity for removal.

EXAMINATION OF WATER FROM LEBANON.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
9452	Sept. 1	14	trace	trace	faint woody	.056	.238	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting Constituents.	Residue on evaporation.		Bacteria.		Iron.
					Total.	Loss on ignition.	No. per c. c.	Colon present.	
2452	1.39	11.1	265	12	369	62	.....	no	4.0

WATER SUPPLY OF FRANKLIN COUNTY CHILDREN'S HOME, MARION TOWNSHIP, FRANKLIN COUNTY.

The supply is obtained from a driven and drilled well, 80 feet in depth. An analysis of the water was requested because of the presence of a few cases of typhoid fever among the inmates of the Home. The examination showed the water to be a usable one.

EXAMINATION OF WATER FROM FRANKLIN COUNTY CHILDREN'S HOME.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free Ammonia.	Nitrites	Nitrates
2393	Aug. 13	10	trace	trace	faint iron	.352	.078	none	none

The oxygen required for this sample was 2.29; chlorine, 5.4; number of bacteria per cc, 2; and colon bacilli were not found to be present.

WATER SUPPLY OF NEWCOMERSTOWN.

This supply is derived from six driven wells about 40 feet in depth. An examination was requested to ascertain the quality. The analysis indicates a good water.

EXAMINATION OF WATER FROM NEWCOMERSTOWN.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2559	Oct. 6	14	none	trace	faint	.086	.004	none	.40

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation.		Iron
					Total.	Loss on ignition.	
2559	2.58	14.3	150	27	252	103	.3

WATER SUPPLY OF NILES.

See special report on Typhoid Fever at Niles, published elsewhere in this volume.

WATER SUPPLY OF PAINESVILLE.

This supply is derived from Lake Erie by means of natural sand filtration into filter boxes in the beach. It is said this filtration is sometimes interfered with by the ice and then the water is pumped directly from the lake without filtration.

Complaint was made of the character of the water in March and accordingly a sample of the Painesville water was taken from a hydrant at Richmond village. The examination of this sample shows pollution. A better idea of the amount of pollution may be gained by referring to the special study of the public supplies from Lake Erie, a report of which appeared in the annual report of the State Board of Health for 1901.

EXAMINATION OF WATERS FROM POMEROY.

PARTS PER MILLION.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2119	Mch.10	35	52	very slight	v. faint. veg.	.144	.044	none	.68

Sample number.	Oxygen Required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation.		Bacteria.	
					Total.	Suspended	No. per c. c.	Colon present in 40 c. c.
2119	4.51	2.5	51	26	161	36	6800	yes

WATER SUPPLY OF POMEROY.

The supply is obtained from the Ohio River and the water is treated by mechanical filtration. The June sample was examined on account of the

presence of typhoid fever in the city. The July samples were examined to learn how efficiently the river water was being purified. The results show a greater number of bacteria than there should be in a carefully filtered water and more than occurred in some of the samples from the same source in 1901.

Samples 2316 and 2348 were hydrant samples, while 2347 was taken from the Ohio River near the waterworks.

EXAMINATION OF WATERS FROM POMEROY.

Parts per Million.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2316	June 24							none	.40
2347	July 11	50	923	much	earthy and veg.	.386	.056	.003	.85
2348	July 11	24	trace	trace	none	.080	.009	none	.83

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituents.	Residue on evaporation.		Bacteria.		Iron.
					Total.	Loss on ignition.	No. per c. c.	Colon present.	
2316		25.0	20				125	yes	
2347	7.67	6.2	22	22	470	60	undetermined		25.0
2348	1.99	6.5	8	35	108	34	800	yes	.5

WATER SUPPLY OF SANDUSKY.

The supply is obtained from a crib in the bay. The water is Lake Erie water more or less influenced by pollution from the bay and Sandusky River. A small sample of water (No. 2143) was received on April

7. Examination showed 75 bacteria per c. c., with no colon present; nitrites, a trace; nitrogen as nitrates, .10; and chlorine, 12.0 parts per million. The analysis indicated that the pollution at the time of sampling was of a minor character.

WATER SUPPLY OF TOLEDO.

See special report in connection with a proposed change of supply for Toledo, published elsewhere in this volume.

WATER SUPPLY OF WARREN.

The supply is derived by mechanical filtration from Mahoning River. In connection with an examination of samples from private wells suspected of causing typhoid fever, a sample of the city water was examined. The results suggest a slightly defective filtration somewhere.

EXAMINATION OF WATER FROM WARREN.

Parts per Million.

Sample number.	Collected.	Color.	Turbidity.	Sediment.	Odor.	Nitrogen as			
						Albuminoid ammonia.	Free ammonia.	Nitrites	Nitrates
2579	Oct. 20	13	none	none	none	.122	.013	none	none

Sample number.	Oxygen required.	Chlorine.	Alkalinity.	Incrusting constituent-ignition.	Residue on evaporation.		Bacteria.	
					Total.	Loss on ignition.	No. per c. c.	Colon Present in 50 c. c.
2579	4.26	2.6	62.	55.	192.	63	150	Yes

c EXAMINATIONS OF MISCELLANEOUS WATERS FROM

PARTS PER

Sample number.	Place	Source of sample.	Date collected.		Cause for examination.	Color.	Turbidity.	Sediment.	Odor.	Oxygen required.
			Month	Day						
2087	Arlington	Dug well	2	7	Typhoid	10	none	T	none	1.23
2116	"	"	3	10	"	12	T	T	"	1.88
2571	Ashtabula	" " public	10	13	Quality	18	T	T	none	2.54
2401	Attica	"	8	14	Typhoid	30	T	T	T	4.68
2574	Bays	"	10	13	"	43	T	T	faint	11.81
2575	Berwick	Dug, drilled well	5	23	Typhoid	T	none	none	none	.70
2207	Bloomington	See spec'l report.	4	14	"	T	"	"	"	.94
2145	Brookville	Dug well, school	3	10	"	8	"	"	"	.70
2117	Buffalo Tp.	"	5	26	Quality	6	T	V. S.	"	1.90
2212	Canton	"	8	12+	Typhoid	8	none	none	brandy?	2.93
2392	Centerburg	"	8	15	"	14	"	"	none	1.36
2402	"	"	8	26	"	16	S	S	faint	3.23
2424	"	"	8	26	"	16	S	S	faint	3.23
*Cincinnati	Coal Tp.	Dug well, school	11	2	Typhoid					
2600	Perry county	Same as 2600	11	9	"	T	none	T	peculiar	1.17
2602	Coal Tp.	"	9	17	"	40	T	T	none	7.02
2529	Coldwater	Cistern	9	10	"	5	none	none	"	
2509	Columbus	Dug well	10	7	Quality	10	"	T	"	1.35
2561	"	Goodale Park	9	12	Typhoid	5	"	none	"	1.14
2519	"	Spring	9	16	"					
2523	"	Same as 2519	9	17	"					
2528	"	"	9	17	"					
2573	"	"	10	14	"					
2451	Condit	Dug well	9	1	"	10	S	V. S.	faint oily	1.24
2134	Conneaut	"	3	19	"					
2135	"	"	3	19	"					
2629	Cuba	"	11	24	"	20	T	T	none	1.81
2635	"	drilled well, sch'l	11	26	Quality	25	4300	much	earthy	483.09
2527	Cutler	Dug well	9	16	Typhoid	10	none	T	none	2.12
2591	Dallas Tp.	"	10	21	"	10	S	S	peculiar	1.19
2608	Crawford Co.	"	11	12	"	10	81	distin't	none	.91
2609	Delaware Tp.	Driven well	11	12	"	10	81	"	"	.89
2608	Hancock Co.	Same as 2608	11	12	"	10	81	"	"	1.59
2077	Dresden	Driven well	1	30	Quality	T	T	T	"	2.06
2267	Findlay	Drilled well	6	11	Typhoid	10	none	T	"	3.00
2340	"	"	7	9	"	12	"	T	faint	3.51
2341	"	"	7	9	"	18	"	none	sweetish	3.12
2342	"	"	7	9	"	22	T	T	oily	1.15
2419	"	" " p'blic	8	26	"	14	S	V. S.	faint oily	6.08
2420	"	" " sch'l	8	26	"	8	43	T	earthy	3.67
2421	"	"	8	26	"	18	T	T	none	2.54
2422	"	" " p'blic	8	26	"	7	T	T	faint oily	2.79
2321	Forest	Well	6	30	"	20	S	S	faint	2.61
2158	Galion	Dug well	4	24	Quality	12	"	T	none	1.61
2157	"	"	4	24	"	10	none	T	"	1.34
2632	"	Same as 2157	11	25	"	T	"	T	"	1.28
2131	Grove City	Dug well, driven	3	17	Bowel't'ble	8	V. S.	V. S.	ft. eat'y	1.12
2471	Independence	"	9	8	Typhoid	33	T	T	none	10.36
2614	Jackson Tp.	"	11	14+	"	T	none	none	"	2.82
2540	Noble Co.	Well	9	24	Quality	14	"	V. S.	"	3.36
2127	Jamestown	Dug well, school	3	13	Typhoid	17	T	T	"	1.53
2454	Jefferson	Drilled well	9	3	Pollution	T	none	T	ft. p'elior	.70
2390	Lima	"	7	19	Quality	18	40	S	oily	3.54
2536	Lisbon	Dug	9	23	Typhoid	35	123	plenty	sewage	15.04
2090	Loudon Tp.	"	2	2	"	10	T	T	earthy	.66
2636	Seneca Co.	"	11	28	"	T	T	T	none	1.93
2637	Loudonville	Spring	11	28	"	T	T	V. S.	"	5.20
2109	Marble Cliff	Well	2	27	"	14	T	T	stl.wo'dy	3.88
2355	Marietta	Spring	8	9	"	15	T	T	none	1.65
2396	"	Cistern	8	9	"	28	T	T	ft.wo'dy	1.63
2653	Millersport	Dug well	12	16	"	15	T	T	none	3.09
2654	"	"	12	16	"	70	68	T	"	22.11
2655	"	Dug, bored well	12	16	"	20	20	T	"	4.74
2656	"	Dug well	12	16	"	15	T	T	"	4.42

PRIVATE SUPPLIES AND SPECIAL SOURCES.

MILLION.

Nitrogen as				Chlorine.	Alkalinity.	Total solids.	Color bacilli present	Bacteria per C. C.	Remarks. A
Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.						
.029	.012	.006	8.20	66.5	302	383	no	1200	Advised closing.
.072	.020	none	1.44	21.5	209	383	no	4600	Not condemned.
.....	.....	.030	17.50	33.8	.....	.....	yes	1100	Polluted, closed.
.092	.003	.008	8.00	116.4	334	2126	yes	1400	Condemned.
.158	.012	.004	2.60	108.5	270	771	yes	3100	Condemned.
.324	.010	.025	16.00	24.0	223	582	yes	3000	Condemned.
.026	.005	.005	21.80	15.9	.....	624	no	350	Undesirable.
.030	.001	none	1.45	3.6	296	589	no	350	Usable.
.022	.016	none	5.60	64.0	158	504	no	1300	Not condemned.
.104	1.906	.180	7.80	42.3	353	804	no	31500	Badly polluted.
.....	.....	.006	5.00	5.9	.....	.....	yes	8500	Polluted, abandoned.
.054	.026	none	7.00	88.0	286	851	yes	500	Polluted, condemned.
.174	.002	.026	24.00	52.9	262	895	no	1500	Condemned.
.....	.....	none	none	none	.....	.....	no	1900	Usable, protect.
.070	.014	none	none	trace	110	217	.....	.....	Usable, protect.
.188	.042	.110	4.40	27.1	299	457	yes	1400	Polluted.
.032	.096	.004	3.00	41.2	299	934	yes	13700	Polluted, closed.
.062	.010	.003	.30	6.8	239	569	no	500	Usable.
.096	.014	.030	2.00	2.3	283	492	yes	90	Suspicious.
.....	.....	.040	2.00	2.1	.....	.....	no	23	"
.....	.....	.044	.....	2.8	.....	.....	.....	.....	"
.....	.....	.025	1.80	2.6	.....	.....	yes	100	"
.078	.164	none	none	19.0	457	652	no	400	Usable.
.....	.....	.016	18.20	155.4	.....	.....	no	900	Polluted, abandoned.
.....	.....	none	2.90	120.6	.....	.....	no	1200	Not desirable.
.090	.120	.014	10.20	50.5	354	688	yes	3300	Closed.
.228	3.050	none	trace	11.7	230	23911	no	17000	Unfit for use.
.088	.015	.004	10.00	43.9	116	.....	yes	3500	Condemned.
.068	.078	trace	.60	16.5	283	482	yes	1400	Condemned.
.098	.864	trace	trace	12.9	138	3102	.....	.....	Unightly, undesirable.
.090	.870	trace	trace	12.8	138	.....	.....	.....	"
.041	.015	.002	10.40	63.8	327	493	no	20000	Condemned.
.110	.446	.007	2.65	37.9	339	639	yes	600	"
.158	.036	.045	18.50	76.2	323	1366	yes	550	"
.142	.018	.008	26.50	86.1	380	1346	yes	950	"
.130	.032	.030	35.00	52.9	293	982	yes	1100	"
.068	.466	.006	none	10.4	180	1087	no	1250	Not desirable.
.164	.034	trace	trace	285.8	416	2747	no	23	Not desirable.
.142	.164	.012	1.40	241.2	417	1330	no	150	Advised closing.
.128	.054	none	trace	195.6	347	1319	no	300	Not desirable.
.150	.018	.005	14.00	89.0	200	620	.....	.....	Advised closing.
.136	.136	.010	1.00	41.8	286	1615	no	1300	"
.094	.010	.002	12.00	50.5	191	837	no	650	"
.064	.022	.016	16.00	38.2	270	869	no	2400	"
.107	.041	none	none	18.7	449	765	no	50	Usable.
.297	.019	none	17.00	29.0	53	483	suspicious	3000	Condemned.
.194	.026	.001	2.00	5.5	.....	292	yes	51000	Polluted, unsafe.
.138	.008	none	2.40	37.7	313	578	yes	7300	Polluted.
.176	.012	none	7.20	33.8	193	450	no	10500	Advised closing.
.046	.464	.070	.40	103.9	217	438	.....	.....	Advised abandoning.
.124	.510	.002	none	691.9	307	2380	.....	.....	Inorganic high.
1.220	11.890	none	trace	52.9	375	506	yes	120000	Condemned.
.030	.250	trace	.10	15.1	235	1020	no	950	Not condemned.
.152	.018	none	5.60	3.3	200	550	yes	2000	Polluted.
.280	.048	.010	5.00	4.0	201	392	yes	4400	Polluted, closed.
.156	.009	.050	6.80	26.4	283	615	yes	35000	Condemned.
.061	.026	trace	.95	5.5	267	375	yes	5800	"
.110	.052	trace	.10	none	19	54	yes	550	Usable if not open to pollution.
.156	.034	.003	24.00	33.7	259	754	no	3700	Advised abandoning.
.496	.150	.080	69.00	66.5	106	914	yes	45000	Closed.
.208	.042	.034	14.40	141.0	191	986	yes	11000	"
.180	.032	.009	19.20	190.0	194	1378	no	6500	Advised abandoning.

EXAMINATION OF MISCELLANEOUS WATERS FROM

PARTS PER

Sample number.	Place.	Source of sample.	Date collected.		Cause for examination.	Color.	Turbidity.	Sediment.	Odor.	Oxygen required.
			Month.	Day.						
2657	Millersport	Bored well	12	16	Typhoid..	40	40	V. S.	decaying veg't'tin	14.15
2122	Mt. Pleasant....	Dug well	3	10	"	12	none	T	oily	1.49
2556	Mt. Sterling....	Dug well, school.	10	6	"	11	"	T	ft.earthy	1.50
2111	New Bremen....	Dug, drilled well	2	27	"	12	T	T	none	1.32
2404	Newcomerstown	Driven well.....	8	18	"	"	"	"	"	"
2405	"	" " sch'l	8	18	"	10	none	none	none	.42
2406	"	" " "	8	18	"	"	"	"	"	"
2407	"	" " "	8	18	"	"	"	"	"	"
2408	"	" " "	8	18	"	"	"	"	"	"
2409	"	" " sch'l	8	18	"	5	none	none	none	.39
2410	"	" " "	8	18	"	"	"	"	"	"
2411	"	" " "	8	18	"	"	"	"	"	"
2557	"	Spring	10	6	Quality ..	"	"	"	"	"
2558	"	Same as 2405 ..	10	6	"	10	none	none	none	.75
2201	New Waterford.	Dug, drilled well	5	20	Typhoid..	10	T	T	T	.69
2202	"	Dug well	5	20	"	11	none	none	T	.66
2125	Niles	" " "	3	10	"	"	"	"	"	"
2534	Oxford	Dug well	9	22	"	5	none	none	none	1.58
2570	Paint Tp.,	" " "	10	12	"	5	none	T	none	1.47
2314	Fayette Co....	" " "	6	24	"	"	"	"	"	"
2315	Pomeroy	Well, school	6	24	"	"	"	"	"	"
2156	"	" " "	6	24	"	"	"	"	"	"
2626	Rice Tp.,	" " "	4	24	Quality ..	T	none	none	sulphur	1.14
2626	Sandusky Co..	Drilled well.	11	20	Typhoid..	"	"	"	"	"
2627	Rushsylvania ..	Cistern, well.....	11	20	"	"	"	"	"	"
2628	"	" " school	11	20	"	"	"	"	"	"
2197	St. Marys	Spring	5	19	"	T	none	none	none	.84
2198	"	" " "	5	19	"	T	"	"	"	.76
2204	Sandusky Tp..	" " "	"	"	"	"	"	"	"	"
2470	Sandusky Co..	Dug well	5	20	Sickness..	28	T	T	T	7.78
2323	Tiffin	Dug, drilled well	9	8	Typhoid..	10	T	"	none	1.15
2340	Toledo	Drilled well	7	7	"	"	"	"	"	"
2549	"	Same as 2533	7	14	"	25	100	d'cided	earthy	5.98
2534	"	Drilled well	7	7	"	"	"	"	"	"
2550	"	Same as 2534	7	14	"	12	none	none	ft. oily	.90
2603	Troy Tp.,	" " "	"	"	"	"	"	"	"	"
2540	Richland Co ..	Dug well	11	10	Typhoid..	12	V. S.	T	none	1.42
2541	Warren	Drilled well.	10	20	"	12	none	T	T	1.04
2542	"	Dug well	10	20	"	12	95	distin't	chalky	1.87
2543	"	Drilled well.....	10	20	"	8	none	none	none	.53
2072	"	" " "	10	20	"	10	"	"	ft. oily	2.84
2073	Wellsville	" " "	1	21	Bowel t'ble	11	T	V. S.	none	1.31
2584	"	" " "	1	21	"	9	19	S	none	1.36
2584	Wilmington ..	D & D well, scho'l	10	22	Typhoid..	20	108	d'cided	earthy	4.59
2076	York Tp.,	" " "	"	"	"	"	"	"	"	"
2533	Sandusky Co..	Well	1	30	"	110	none	T	none	3.36
2552	Zanesfield.....	Dug, driven well.	9	19	Typhoid..	"	"	"	"	"
2552	"	Same as 2533 ..	10	5	"	"	"	"	"	"
2553	"	Dug, driven well.	10	5	"	"	"	"	"	"
2555	"	" " "	10	22	"	"	"	"	"	"
2546	"	" " "	10	22	"	"	"	"	"	"
2547	"	" " "	10	22	"	"	"	"	"	"
2548	"	Driven well, sch'l	10	22	"	"	"	"	"	"
2549	"	Dug, driven well.	10	22	"	"	"	"	"	"
2540	"	Artesian well ..	10	22	Quality ..	"	"	"	"	"

*See special report on pollution of Mill Creek.

**See special report on Typhoid Fever at Findlay.

+Date received.

++See special report on Typhoid Fever at Niles.

A. In forming the final opinion, the surroundings of the source were considered and also the history of sickness among the users of the water.

PRIVATE SUPPLIES AND SPECIAL SOURCES—Concluded

MILLION.

Nitrogen as				Chlorine.	Alkalinity.	Total solids.	Color bacilli present	Bacteria per C. C.	Remarks.
Albuminoid Ammonia.	Free Ammonia.	Nitrites.	Nitrates.						
.804	.486	.012	none	86.3	354	718	yes	25000	Closed.
.060	.022	none	17.40	43.6	177	930	yes	1400	Closed.
.044	.020	trace	2.20	1.6	302	360	suspicious	650	Advised protection.
.068	.154	none	trace	12.7	194	854	no	1900	Usable.
.....	.....	.....	4.50	7.8	.....	.....	no	160	Advised abandoning.
.018	.012	.002	13.00	14.9	167	392	.....	.....	.....
.....	.....	.010	6.50	12.2	.....	.....	no	60	.....
.....	.....	none	7.00	7.5	.....	.....	no	350	.....
.....	.....	.....	3.00	4.5	.....	.....	no	21	Usable, inferior to public supply.
.038	.018	trace	9.00	7.0	211	435	.....	.....	Advised to abandon or protect.
.....	.....	.....	12.50	54.5	.....	.....	no	65	Advised abandoning.
.....	.....	none	15.00	26.3	.....	.....	no	85	.....
.....	.....	.040	1.60	trace	.....	.....	yes	1900	Condemned.
.028	.014	none	11.00	14.1	138	392	.....	.....	Protect if used.
.008	.008	.006	.55	2.6	165	209	no	170	Advised protection.
.020	.014	.010	3.80	8.0	33	145	no	50	Undesirable.
.....	.....	none	6.30	156.8	.....	.....	no	25000	Some pollution.
.048	.011	none	2.10	25.7	257	408	yes	650	Advised abandoning.
.104	.014	.016	40.00	217.2	371	1275	yes	2000	Condemned.
.....	.....	.012	25.00	87.4	.....	.....	suspicious	105	.....
.....	.....	.180	32.00	250.8	.....	.....	yes	1000	.....
.092	.376	none	none	37.0	202	2985	no	15	High inorganic.
.....	.....	.056	4.40	27.0	.....	.....	yes	800	Condemned.
.....	.....	none	trace	trace	.....	.....	no	3100	Usable.
.....	.....	.014	.....	.....	.....	.....	suspicious	3900	Advised cleaning.
.066	.009	.018	7.00	51.1	357	863	no	4	Suspicious.
.051	.008	none	.70	42.8	374	1009	no	4	Usable.
.306	.054	.180	27.00	141.0	203	985	yes	14500	Closed.
.034	.003	none	.90	17.1	339	1026	no	375	Usable.
.....	.....	.....	.....	.....	.....	.....	no	.....	Advised abandoning.
.380	4.440	.001	trace	11.5	547	741	no	34	Advised abandoning.
.104	.440	none	none	10.6	210	453	no	5	Usable.
.078	.012	.001	14.00	65.2	207	551	yes	1500	Condemned.
.048	.680	none	none	108.4	408	656	no	33	Usable.
.054	.024	trace	.....	19.6	315	543	yes	1750	Protect or abandon.
.032	.760	none	.....	47.0	445	578	no	12	Usable.
.048	.856	.....	.....	246.0	609	1095	no	2	Usable, not desirable.
.106	.458	.....	trace	141.0	338	709	no	25	Usable.
.122	.610	.....	.....	61.0	256	456	no	2000	Usable.
.214	1.510	.....	none	8.5	388	487	no	130	Not desirable.
.026	.056	.004	6.50	18.1	.....	.....	no	11000	Advised abandoning.
.....	.....	none	3.00	trace	.....	.....	yes	77000	Condemned.
.....	.....	.006	3.60	.....	.....	.....	yes	65000	Polluted.
.....	.....	.006	3.20	.....	.....	.....	yes	130000	Polluted.
.....	.....	none	4.60	.....	.....	.....	no	1	Usable.
.....	.....	.....	4.00	.....	.....	.....	no	95	Usable.
.....	.....	.....	5.40	1.8	.....	.....	no	25	Usable.
.....	.....	trace	5.00	4.0	.....	.....	no	1900	Protect.
.....	.....	none	5.20	6.6	.....	.....	no	350	Protect.
.....	.....	.002	none	88.5	.....	.....	no	6	Usable.

SUMMARY OF LABORATORY WORK.

During the year 688 samples were received and examined. These were divided as follows: Diphtheria 29; miscellaneous 55; waters 484; and sewages 120. The small number of the briefer examinations as compared with the many samples requiring the longer examinations is as apparent as in former years.

LIST OF
CITIES AND VILLAGES
HAVING
BOARDS OF HEALTH
WITH THE NAME OF
HEALTH OFFICER

April 15, 1902.

HEALTH OFFICERS.

CITIES.

City.	County.	Health Officer.
Akron	Summit	Dr. A. A. Kohler
Alliance	Stark	Dr. P. W. Welker
Ashtabula	Ashtabula	Dr. A. W. Hopkins
Bellaire	Belmont	Dr. D. W. Boone
Bellefontaine	Logan	Dr. J. S. Deemy
Bowling Green	Wood	Mr. A. Ordway
Bucyrus	Crawford	Dr. A. H. McCrory
Cambridge	Guernsey	Mr. T. C. Stanley
Canal Dover	Tuscarawas	Mr. H. Breitenstein
Canton	Stark	Dr. J. F. Marchand
Chillicothe	Ross	Dr. W. S. Scott
Cincinnati	Hamilton	Dr. Clark W. Davis
Circleville	Pickaway	Mr. Wm. H. Dunkel
Cleveland	Cuyahoga	Dr. Martin Friedrich
Columbus	Franklin	Dr. McKendree Smith
Conneaut	Ashtabula	Dr. R. J. Baxter
Coshocton	Coshocton	Dr. J. E. Foster
Dayton	Montgomery	Dr. C. W. King
Defiance	Defiance	Dr. E. E. K. Chapman
Delaware	Delaware	Dr. O. W. Bonner
East Liverpool	Columbiana	Dr. C. B. Ogden
Elyria	Lorain	Dr. Geo. E. French
Findlay	Hancock	Mr. Amos Beardsley
Fostoria	Seneca	Mr. W. N. Caldwell
Fremont	Sandusky	Dr. O. C. Vermilya
Galion	Crawford	Dr. H. H. Hartman
Gallipolis	Gallia	Dr. F. A. Cromley
Glenville	Cuyahoga	Mr. Chas F. Dietz
Greenville	Darke	Mr. E. C. Ballard
Hamilton	Butler	Dr. August Schumacher
Ironton	Lawrence	Dr. J. W. Lowry
Kenton	Hardin	Mr. J. H. Bonham
Lancaster	Fairfield	Dr. F. P. Stukey
Lima	Allen	Dr. J. F. Mathews
Lorain	Lorain	Dr. Edward V. Hug
Mansfield	Richland	Dr. J. Harvey Craig
Marietta	Washington	Dr. J. B. McClure
Marion	Marion	Dr. E. H. Raffensperger
Martins Ferry	Belmont	Mr. R. A. Lindemuth
Massilon	Stark	Mr. Thos. H. Seaman
Middleton	Butler	Dr. Geo. D. Lummis

City.	County.	Health Officer.
Mt. Vernon	Knox	Dr. R. W. Colville
Nelsonville	Athens	Dr. N. Hill
Newark	Licking	Dr. Henry Day
Newburg	Cuyahoga	Mr. G. C. Kerr
New Philadelphia ...	Tuscarawas	Dr. George H. Peck
Niles	Trumbull	Dr. Henry V. Ormerod.
Norwalk	Huron	Dr. Edgar Martin
Norwood	Hamilton	Dr. J. C. Cadwallader
Painesville	Lake	Mr. S. A. Haskell
Piqua	Miami	Dr. F. E. Kitzmiller
Portsmouth	Scioto	Dr. Henry Halderman
St. Marys	Auglaize	Dr. B. E. Thomas
Salem	Columbiana	Dr. E. J. Schwartz
Sandusky	Erie	Dr. Wm. H. Busch
Sidney	Shelby	Mr. Wm. C. Wyman
Springfield	Clark	Dr. Henry H. Seys
Steubenville	Jefferson	Mr. John Welch
Tiffin	Seneca	Dr. A. C. Schwartz
Toledo	Lucas	Dr. W. W. Brand
Troy	Miami	Dr. C. E. McCullough
Urbana	Champaign	Dr. C. C. Craig
Van Wert	Van Wert	Dr. C. G. Church
Warren	Trumbull	Dr. D. E. Hoover
Washington C. H. ...	Fayette	Mr. J. M. Edwards
Wellston	Jackson	Mr. Thos. McGuire
Wellsville	Columbiana	Dr. M. C. Tarr
Wooster	Wayne	Dr. J. W. Lehr
Xenia	Greene	Dr. H. R. McCellan
Youngstown	Mahoning	Dr. H. E. Welch
Zanesville	Muskingum	Dr. Charles P. Sellers

VILLAGES.

Aberdeen	Brown	Dr. W. H. Grimes
Ada	Hardin	Mr. W. H. Morrow
Adamsville	Muskingum	Mr. S. J. Lane
Addyston, P. O. (1) ..	Hamilton	Mr. Chas. L. Keeley
Adelphi	Ross	Mr. W. S. Koch
Adrian	Huron	
Agosta, P. O. (2) ..	Marion	
Albany	Tuscarawas	Dr. A. F. Holmes
Alexandria	Licking	
Alger	Hardin	Mr. Albert Simmons
Allentown	Allen	
Alvordton	Williams	Dr. T. E. Schrider
Amelia	Clermont	
Amesville	Athens	Dr. E. E. Gillilan
Andover	Ashtabula	Mr. L. W. Houghton

(1) New Bloomington.

(2) Sekitan.

Village.	County.	Health Officer.
Anna	Shelby	Dr. C. W. Harbour
Ansonia	Darke	Dr. H. A. Snorf
Antwerp	Paulding	Mr. Elmer Cole
Antioch	Monroe	
Apple Creek	Wayne	Mr. W. H. Winkler
Arcadia	Hancock	Mr. W. W. Moore
Arcanum	Darke	Mr. J. A. Wallace
Archbold	Fulton	
Arlington	Hancock	Mr. Solomon Bates
Arlington Heights	Hamilton	
Arnettville (1)	Darke	
Ashland	Ashland	Dr. F. V. Detterweich
Ashley	Delaware	Dr. H. N. Coomer
Ashville	Pickaway	Mr. J. W. Johnson
Athalia	Lawerence	
Athens	Athens	Dr. J. M. Higgins
Attica	Seneca	Dr. C. A. Force
Avon	Lorain	Dr. Jno. R. Pipe
Bainbridge	Ross	Dr. R. H. McKee
Bairdstown	Wood	Dr. R. H. Quick
Bakersville	Coshocton	Dr. J. D. Lower
Baltimore	Fairfield	Dr. C. M. Alt
Barberton	Summit	Dr. A. H. Stall
Barnesville	Belmont	Mr. W. A. Talbot
Barnhill	Tuscarawas	Mr. John Stevenson
Batavia	Clermont	Dr. Chas. R. Belt
Batesville	Noble	Mr. Caleb Mercer
Beach City	Stark	Dr. I. M. Pfouts
Beallsville	Monroe	Mr. G. F. Hendershot
Beaver	Pike	Mr. V. E. White
Beaver Dam	Allen	Dr. J. B. Haines
Bedford	Cuyahoga	Mr. C. W. Kerslake
Bellbrook	Greene	Mr. G. H. Lamb
Belle Center	Logan	Mr. J. T. Ewing
Belleville	Richland	Dr. R. N. Eastman
Bellevue	Huron	Dr. E. D. Smith
Belmont	Belmont	Mr. David S. Pierce
Beloit	Mahoning	
Belmore	Putnam	Dr. G. B. Adrian
Belpre	Washington	Mr. Joseph Sharp
Benton Ridge	Hancock	Dr. R. D. Whistler
Berea	Cuyahoga	Dr. E. O. Hess
Berlin Heights	Erie	Dr. G. W. Hine
Berne P. O., (2)	Noble	Dr. G. G. Mallet
Bethel	Clermont	Mr. W. E. Thompson
Bettsville	Seneca	Dr. Geo. W. Willard
Beverly	Washington	Mr. I. J. Pierce
Blakeslee	Williams	

(1) Pittsburg, P. O.

(2) Carlisle.

Village.	County.	Health Officer.
Blanchester	Clinton	Mr. R. M. Rilsa
Bloom Center	Logan	Dr. O. C. Wilson
Bloomdale	Wood	Mr. E. Wineland
Bloomfield, (1).....	Jefferson	
Bloomingsburg	Fayette	Mr. H. A. Pinkerton *
Bloomington P. O. (2)	Jefferson	
Bloomville	Seneca	Dr. T. C. Loose
Bluffton	Allen	Dr. John J. Sutter
Bolivar	Tuscarawas	Mr. Ed. Myers
Bond Hill	Hamilton	Mr. D. Edw. Murphy
Boston, (3)	Clermont	
Botkins	Shelby	Mr. Allen Wical
Bourneville	Ross	Dr. J. A. Van Winkle
Bowerston	Harrison	Dr. C. E. Siegrist
Bowersville	Greene	Mr. L. S. O. Day
Bradford	Miami	Mr. John Tinkler
Bradner	Wood	Mr. O. J. Mitchell
Bremen	Fairfield	Dr. A. A. Bradford
Bridgeport	Belmont	Dr. V. Wagener
Brilliant	Jefferson	Mr. A. McIntire
Brinkhaven P. O., (4)	Knox	Mr. G. N. House
Brooklyn P. O., (5)...	Cuyahoga	Mr. J. Renker
Brookside	Belmont	
Brookville	Montgomery	Dr. H. W. McMillen
Broughton	Paulding	Mr. James Boroff
Bryan	Williams	Mr. Nicholas Vineyard
Buchtel	Athens	Dr. H. T. Lee
Buckeye City	Knox	Mr. F. M. Walker
Burbank	Wayne	Mr. A. W. Hoffman
Burkettsville	Darke	Dr. B. G. Inman
Burton	Geauga	Dr. W. H. Shank
Butler	Richland	Dr. E. G. Rummel*
Butlerville	Warren	
Byesville	Guernsey	Mr. D. F. Morrow
Cadiz	Harrison	Dr. R. P. Rusk*
Calais	Monroe	Dr. J. J. Burton*
Caldwell	Noble	Dr. John Finley
Caledonia	Marion	Mr. Noah Lee
Camden	Preble	Dr. W. E. Pryor
Canal Fulton	Stark	Mr. Geo. Becker
Canal Winchester ...	Franklin	Dr. W. S. Gayman
Canfield	Mahoning	Mr. A. D. Wood
Cannellville, (6)	Muskingum	
Cardington	Morrow	Mr. W. H. VanHorn
Carey	Wyandot	Dr. W. A. Crum

(1) Bloomington, P. O.

(2) Bloomfield.

(3) Owensville P. O.

(4) Gann.

(5) South Brooklyn.

(6) Dillons P. O.

*In lieu of Board of Health.

Village.	County.	Health Officer.
Carlisle, (1)	Noble	
Carroll	Fairfield	Dr. H. A. Brown
Carrollton	Carroll	Dr. A. H. Hise
Carthage	Hamilton	Mr. F. S. Staaf
Casstown	Miami	
Catawba	Clark	Dr. J. D. Thomas
Cecil	Paulding	Dr. S. E. Demuth
Cedarville	Greene	Mr. M. H. Shroads
Celina	Mercer	Mr. Joseph Sager
Center, P. O. (2)	Montgomery	
Centerburg	Knox	Mr. J. C. Coe
Centerville	Montgomery	Dr. B. W. Keever*
Centerville, (3)	Gallia	
Chagrin Falls	Cuyahoga	Mr. W. S. Clark
Chambersburg, (4)	Gallia	
Chardon	Geauga	Mr. N. M. Goodrich
Chatfield	Crawford	Mr. Samuel Lutz
Chesterhill	Morgan	Mr. Jonathan Morris
Chesterville	Morrow	Dr. W. C. Hodges
Chicago	Huron	Dr. A. R. Kauffman
Chickasaw	Mercer	Mr. H. S. Schaefer
Clarington	Monroe	Mr. C. E. Reilly
Clarksburg	Ross	Mr. Wm. Ware
Clarksville	Clinton	Dr. C. W. Snook
Cleveland Heights	Cuyahoga	Dr. F. F. Quilliam
Cleves	Hamilton	Dr. W. C. Hughes
Clifton	Greene	Dr. J. H. Harris
Clinton, (5)	Huron	
Cloverdale, (6)	Putnam	
Clyde	Sandusky	Mr. F. G. Tuttle
Coal Grove	Lawrence	
Coalton	Jackson	Mr. M. K. Glenn
Coldwater	Mercer	Mr. T. T. Bollman
College Corner	Butler	
College Hill	Hamilton	Mr. J. E. Deininger
Collinwood	Cuyahoga	Dr. P. E. Kerlin
Columbiana	Columbiana	Mr. Geo. Roninger
Columbus Grove	Putnam	Mr. J. F. Bogart
Commercial Point	Pickaway	Mr. W. J. Rout
Congress	Wayne	Mr. Clyde M. Holmes
Continental, P. O. (7) ..	Putnam	W. M. Sagers

(1) See Berne.

(2) Phillipsburg.

(3) See Thurman.

(4) See Eureka.

(5) See Fitchville.

(6) See Drusilla.

(7) Marice City.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Convoy	Van Wert	Dr. B. F. Leslie
Coolville	Athens	Dr. A. M. Frame
Copley	Summit	Mr. O. E. Arnold
Corning	Perry	Mr. Jno. Snyder
Cortland	Trumbull	Dr. J. Ward
Corwin	Warren	
Covington	Miami	Mr. R. M. Shellabarger
Crestline	Crawford	Dr. C. A. Marquart
Creston	Wayne	Mr. C. N. Millen
Cridersville	Auglaize	Mr. John Reichelderfer
Crooksville	Perry	Mr. C. T. Allen
Croton, P. O. (1)	Licking	Dr. S. S. Reynolds
Crown City	Gallia	Dr. H. P. Gerlach
Cumberland	Guernsey	Mr. Geo. E. McEndree
Custar	Wood	Mr. Edward France*
Cuyahoga Falls	Summit	Mr. I. N. Reid
Curleyville	Athens	
Cygnets	Wood	Mr. D. J. Baker
Dalton	Wayne	Mr. A. H. Arick
Danville	Knox	Dr. C. K. Bradfield
Darbyville	Pickaway	Mr. M. N. Bowman
Deavertown	Morgan	
Deerfield, (2)	Warren	
Deersville	Harrison	Dr. Frank James
Degraff	Logan	Mr. J. W. Hendershott
Delhi	Hamilton	Dr. L. A. Haber
Dellroy	Carroll	Mr. Isaac Russell
Delphos	Allen	Dr. N. E. Brundage .
Delta	Fulton	Dr. W. E. Ramsey
Dennison	Tuscarawas	Dr. L. H. Hughes
Deshler	Henry	Mr. James E. Robinson
Dexter City	Noble	
Dillons, P. O. (3)	Muskingum	Dr. D. W. Trout
Dillonvale	Jefferson	Mr. J. S. King
Donnelsville	Clark	Dr. Horace Hiestand
Doylestown	Wayne	Mr. L. E. Daniels*
Dresden	Muskingum	Mr. C. W. Carter
Drusilla, P. O. (4)	Putnam	
Dublin	Franklin	Dr. C. L. Dolle*
Duncan Falls	Muskingum	
Dunkirk	Hardin	Dr. C. C. McLaughlin
Dupont	Putnam	Mr. T. R. Hart
E. Cleveland	Cuyahoga	Mr. J. H. Stamberger
E. Palestine	Columbiana	Mr. L. Neville
Eaton	Preble	Mr. John McDonald

(1) Hartford.

(2) See South Lebanon.

(3) Cannelville.

(4) Cloverdale.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Edgerton	Williams	Dr. C. Hathaway
Edison	Morrow	Mr. G. G. Thomas
Edon	Williams	Mr. H. A. Alwood
Eldorado	Preble	Mr. A. W. S. Locke
Elgin	Van Wert	Dr. L. P. Jackson
Elida	Allen	Dr. S. A. Hitchcock
Elmore	Ottawa	Dr. R. A. Willet
Elmwood Place	Hamilton	Dr. E. T. Busching
Empire	Jefferson	Mr. John Hunter
Enon	Clark	Mr. James E. Pierce
Eureka, P. O. (1)	Gallia	
Evanston	Hamilton	Dr. Thos. Hulick
Fivepoints	Pickaway	
Fairfield	Greene	
Fairport	Lake	Mr. A. J. McCue
Fairview	Guernsey	Dr. F. W. Lane
Farmersville	Montgomery	Mr. A. W. Beal*
Fayette	Fulton	Mr. Horace W. Ford
Fayetteville	Brown	
Felicity	Clermont	Dr. W. Langman
Fernbank	Hamilton	Mr. James E. Hickman
Fitchville, P. O. (2)	Huron	
Fletcher	Miami	Dr. J. Funderburg
Florida	Henry	Mr. Wm. Thompson
Flushing	Belmont	Dr. Thomas Blackwood
Forest	Hardin	Dr. W. T. Gemmill
Fort Jennings	Putnam	Dr. J. E. Stephan
Fort Recovery	Mercer	Dr. W. R. Taylor
Frankfort	Ross	Dr. L. N. Matteson
Franklin	Warren	Dr. D. A. Williams
Frazesburg	Muskingum	Mr. Wm. Host
Fredericksburg	Wayne	Dr. F. S. McKinney
Fredericktown	Knox	Mr. Thos. E. Burk
Freeport	Harrison	Mr. O. D. Jones
Freeport, (3)	Wood	
Fultonham, P. O. (4)	Muskingum	Dr. C. Z. Axline
Gahanna	Franklin	D. L. Stygler, Mayor.
Gambier	Knox	Dr. A. D. Welker
Gann,	Knox	
Garrettsville	Portage	Dr. C. A. Snow
Geneva	Ashtabula	Dr. F. C. Smith
Genoa	Ottawa	
Georgetown	Brown	Mr. Isaac W. Johnson.*
Germantown	Montgomery	Mr. Wm. Schaeffer

(1) Chambersburg.

(2) Clinton.

(3) See Prairie Depot.

(4) Uniontown.

(5) See Brinkhaven.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Gettysburg	Darke	
Geyer	Auglaize	Dr. W. S. Rudy*
Gibsonburg	Sandusky	Mr. W. O. Dipman
Gilboa	Putnam	Dr. Bruce Snodgrass
Girard	Trumbull	Dr. D. R. Williams
Glandorf	Putnam	Mr. Joseph Horstman
Glendale	Hamilton	Mr. Clifford Allen
Glenmont	Holmes	
Glouster	Athens	Dr. J. M. Rhodes
Gnadenhutten	Tuscarawas	
Goodhope	Fayette	Mr. D. C. Somers
Gordon	Darke	Mr. H. Y. Silner
Grafton	Lorain	Mr. C. N. Storrs
Grand Rapids	Wood	Mr. Wm. Mailey
Grand River, P. O. (1)	Lake	Mr. H. S. Barton
Granville	Licking	Mr. W. E. Clemens
Gratis, P. O. (2)	Preble	Mr. Fred Boeseberg
Graysville	Monroe	Mr. W. E. Barker
Greencamp	Marion	Mr. G. W. Collins
Greenfield	Highland	Mr. Chas. Lemly
Greensprings	Seneca	Dr. R. D. Reynolds
Greenwich	Huron	Mr. J. H. Baker
Grove City	Franklin	Mr. M. L. Harsh
Groveport	Franklin	Dr. R. L. Clement
Grover, (3)	Jefferson	
Groverhill	Paulding	Mr. E. L. Shaw
Hagerman, P. O. (4)	Darke	Mr. G. B. Weaver
Hamden	Vinton	Dr. Wm. Bagley
Hamersville	Brown	
Hamler	Henry	Mr. Wm. Barhite, Sr.
Hanging Rock	Lawrence	Mr. Joseph Kinkaid
Hanover	Licking	
Hanoverton	Columbiana	Mr. Geo. Diezman
Harlem Springs	Carroll	
Harrisburg	Franklin	Mr. C. H. Copeland, Clk
Harrison	Hamilton	Mr. Abe Loos
Harrisville	Harrison	Mr. W. C. Toland, Mayor
Harrod	Allen	Mr. John Blair, Sr.
Hartford, (5)	Licking	
Hartwell	Hamilton	Dr. O. W. Butler
Harveysburg	Warren	Committee, Milton Hadley and Ed. Dakin.
Haskins	Wood	Dr. H. J. Johnston
Haviland	Paulding	

(1) Richmond.

(2) Winchester.

(3) See Tiltonville.

(4) Rossville.

(5) See Croton.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Hayesville	Ashland	Mr. Dill Address
Hebron	Licking	Dr. G. N. Brown
Hemlock	Perry	
Herring, P. O. (1) ..	Allen	
Hicksville	Defiance	Mr. B. L. Kelsey
Higginsport	Brown	Dr. H. G. Guthrie
Highland P. O., (2) ..	Highland	
Hilliards	Franklin	Dr. Wm. Reason*
Hillsboro	Highland	Mr. J. D. McBride
Hiram	Portage	Dr. F. H. Hurd
Holgate	Henry	Mr. W. S. Smith
Hollansburg	Darke	Dr. A. W. Meek
Holmesville	Holmes	Mr. L. F. Miller, Sec'y.
Home City	Hamilton	Dr. B. F. Lehman
Hopedale	Harrison	Dr. L. A. Crawford
Hoytville	Wood	Mr. W. N. Hood
Hubbard	Trumbull	Mr. W. S. Bond
Hudson	Summit	Dr. H. C. Coolman
Huntsville	Logan	Dr. G. W. Jones
Huron	Erie	Mr. S. N. Lennon
Hyde Park	Hamilton	Dr. Arthur L. Brown
Independence	Cuyahoga	
Irondale	Jefferson	Mr. Alex. Hamlin
Ithaca	Darke	Dr. J. C. Hamilton
Jackson	Jackson	Mr. W. H. Brunton
Jacksonboro	Butler	Mr. John Stamm
Jackson Center	Shelby	Mr. Wm. Dowden
Jacksonville	Athens	
Jamestown	Greene	Mr. W. F. McMillen
Jefferson	Ashtabula	Dr. G. O. Mahaffey
Jeffersonville	Fayette	Mr. N. C. Wilcox*
Jenera	Hancock	Mr. C. H. Heldman
Jeromeville	Ashland	
Jerry City	Wood	Mr. Jas. McLaughlin
Jerusalem	Monroe	Mr. J. A. Latham
Jewett	Harrison	Mr. Will Keyser
Johnstown	Licking	Dr. Jas. Wright
Junction City	Perry	Dr. J. A. Moody
Kalida	Putnam	Mr. W. W. Dunavin*
Kelleys Island	Erie	Dr. O. B. Van Epp
Kennedy Heights	Hamilton	
Kent	Portage	Mr. B. C. Newberry
Kettlersville	Shelby	
Killbuck	Holmes	Dr. E. J. Heinig
Kimbolton	Guernsey	Mr. S. A. Clark

(1) Lafayette.

(2) New Lexington.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Kingston	Ross	Dr. C. C. Hatfield
Kirby	Wyandot	Dr. E. E. Burns
Kossuth	Auglaize	Mr. T. J. Barnett
Lafayette, (1)	Allen	
Lagrange	Lorain	Dr. J. W. Lindsey
Lakeside	Ottawa	Mr. Wm. Carroll
Lakeview	Logan	Dr. V. F. Barrett
Lakewood	Cuyahoga	Dr. A. E. McClure
Larue	Marion	Dr. G. A. L. Markwith
Latty	Paulding	Mr. R. Higgenbottom
Laura	Miami	Dr. S. P. Neff
Laurelville	Hocking	Dr. W. D. Cain
Lebanon	Warren	Dr. G. M. Curry
Leesburg	Highland	Dr. H. A. Beeson
Leesville	Carroll	
Leesville X Roads	Crawford	
Leetonia	Columbiana	Dr. S. R. McCready
Leipsic	Putnam	Dr. John McClung
Lewisburg	Preble	Mr. E. E. Black
Lewisville	Monroe	Dr. J. W. Weber
Lexington	Richland	Dr. G. P. Maxwell
Liberty Center	Henry	Mr. D. K. Bowker
Limaville	Stark	Mr. O. P. Sebrell
Lindsey	Sandusky	
Linndale, (2)	Cuyahoga	
Lisbon	Columbiana	Dr. W. C. Nevin
Lithopolis	Fairfield	Mr. W. F. Tarr
Little Sandusky	Wyandot	
Lockbourne	Franklin	Mr. David Bobst*
Lockington	Shelby	Dr. J. Rob't Caywood, Clerk.
Lockland	Hamilton	Mr. C. W. Skillman
Lodi	Medina	Mr. Henry Selders
Logan	Hocking	Dr. D. A. Rannells
London	Madison	Dr. M. Vance
Lorain	Lorain	Dr. Edward V. Hug
Loramie	Shelby	Dr. Thos. Walkup
Loudonville	Ashland	Mr. Wm. Conrad
Louisville	Stark	Dr. W. F. Schilling
Loveland	Clermont	Dr. F. H. Leever
Lowell	Washington	Mr. A. J. Thompson
Lowellville	Mahoning	Mr. J. H. McWilliams
Lower Salem	Washington	Mr. J. P. Hartshorn
Lucas	Richland	Mr. Jacob A. Yoder
Lynchburg	Highland	Mr. M. V. Nolder

(1) See Hering.

(2) See No. Linndale.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Lyons	Fulton	
Macksburg	Washington	Mr. R. C. Smithson
Madison	Lake	Mr. J. V. Winans
Madisonville	Hamilton	Dr. C. L. Metz
Magnetic Springs	Union	Dr. C. L. Schwartz
Magnolia	Stark	Mr. L. H. Scheideger
Maineville	Warren	Mr. G. W. Tufts
Malinta	Henry	Mr. Chas. Spangler
Malta	Morgan	Mr. John Davis
Malvern	Carroll	Dr. John A. Rhiel
Manchester	Adams	Dr. J. D. Jordon
Marble Cliff	Franklin	
Mantua	Portage	
Marblehead	Ottawa	Mr. A. J. Clemons
Marengo	Morrow	
Marice City, (1)	Putnam	
Marseilles	Wyandot	Mr. Jno. C. Wartley
Marshallville	Wayne	Dr. H. B. Wilford
Martinsburg	Knox	
Martinsville	Clinton	Dr. W. K. Ruble
Marysville	Union	Dr. W. R. Weidman, Sec.
Mason	Warren	Dr. C. T. Hall
Maumee	Lucas	Mr. P. Hartman
Mechanicsburg	Champaign	Dr. Jno. C. Hathaway
Medina	Medina	Mr. F. L. Hardin
Melrose	Paulding	Mr. T. J. Myers
Mendon	Mercer	Mr. Frank Notingham *
Mentor	Lake	Dr. J. W. Lowe
Metamora	Fulton	Mr. Augustus Reis
Miamisburg	Montgomery	
Middleburg	Logan	
Middleburg, (2)	Noble	
Middle Creek	Noble	Mr. C. C. Heath
Middlepoint	Van Wert	
Middleport	Meigs	Dr. David Sisson
Midland	Clinton	Dr. E. C. Van Gundy
Midvale	Tuscarawas	
Midway, (3)	Madison	
Mifflin	Ashland	
Milan	Erie	Mr. Fred Collman
Milford	Clermont	Dr. Louis A. Walters
Milford Center	Union	Mr. Thos. Connor
Millbury	Wood	Dr. C. M. Diebert
Milledgeville	Fayette	Dr. W. T. Mathews
Miller City	Putnam	Mr. F. M. Miley
Millersburg	Monroe	Mr. Chas. A. Estell

(1) See Continental.

(2) See Middle Creek.

(3) See Sedalia.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Milton	Mahoning	
Milton Center	Wood	Dr. J. T. Noble
Miltonsburg	Monroe	
Mineral City	Tuscarawas	Dr. C. E. Brothers
Mineral Ridge	Trumbull	Dr. J. M. Elder
Minerva	Stark	Mr. J. C. Young
Mingo Junction	Jefferson	Mr. F. S. Buchanan
Minster	Auglaize	Mr. Christian Myer*
Mogadore	Summit	
Monroeville	Huron	Mr. Geo. M. LaBar
Montezuma	Mercer	Dr. W. H. Tippie
Montpelier	Williams	Dr. J. E. Lesnet
Morristown	Belmont	Mr. J. H. Staggs
Morrow	Warren	Mr. E. Wilkerson
Moscow	Clermont	Dr. W. S. Purkhiser
Mt. Airy	Hamilton	
Mt. Blanchard	Hancock	Dr. R. N. Lee
Mt. Cory	Hancock	Mr. Jacob Doty
Mt. Eaton	Wayne	
Mt. Gilead	Morrow	Dr. F. C. Griffis
Mt. Healthy	Hamilton	Dr. J. Ferris
Mt. Orab	Brown	Mr. Jno. Walker
Mt. Pleasant	Jefferson	Mr. Thos. P. Gorsuch
Mt. Sterling	Madison	Dr. C. F. Gallagher
Mt. Victory	Hardin	Dr. B. B. Morrow
Mt. Washington	Hamilton	Dr. W. C. Langdon
Murray City	Hocking	Dr. T. J. Dillinger
Mutual	Champaign	Mr. C. M. Goul
McArthur	Vinton	Mr. Geo. W. Partlow
McClure	Henry	Mr. E. E. Britton
McComb	Hancock	Mr. Scott W. Preble
McConnelsville	Morgan	Mr. Wm. Dille
McGuffey	Hardin	Dr. J. B. K. Evans
Napoleon	Henry	Mr. D. H. Hancock
Nashville	Holmes	
Navarre	Stark	Mr. Jno. Bailiss
Nevada	Wyandot	Dr. V. K. Knopp
Neville	Clermont	Dr. A. Franco Joseph*
New Albany	Franklin	Mr. C. Horlocker
New Alexandria	Jefferson	
New Athens	Harrison	Dr. Albert Dickerson
New Bloomington, (1)	Marion	
New Bremen	Auglaize	Dr. M. S. Ekermeier
Newburg	Cuyahoga	Mr. G. C. Kerr
New Carlisle	Clark	Dr. A. A. Luther
Newcomerstown	Tuscarawas	Wm. Tidrick
New Concord	Muskingum	Dr. Henry McCreary
New Holland	Pickaway	Mr. J. Q. Shepherd

(1) See Agosta.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
New Knoxville	Auglaize	Dr. H. E. Fledderjohann
New Lebanon	Montgomery	Mr. Lutil Piatt*
New Lebanon, (1) ...	Miami	
New Lexington, (2) ...	Highland	
New Lexington	Perry	Mr. J. W. Holden
New London	Huron	Mr. A. M. Turner
New Madison	Darke	Mr. J. F. S. Hageman
New Matamoras	Washington	Mr. Adam Miracle
New Paris	Preble	Dr. J. Harvey Guthrie
New Petersburg	Highland	
New Richmond	Clermont	Dr. J. A. Windsor
New Riegel	Seneca	Mr. Anthony Imber
New Salem	Fairfield	
New Straitsville	Perry	Mr. Wm. Vorhees
Newton Falls	Trumbull	Mr. H. M. Mealey
New Vienna	Clinton	Dr. C. A. Stout
New Washington	Crawford	Dr. Burton R. Miller
New Waterford	Columbiana	Mr. A. J. Hayes
Ney	Defiance	Dr. P. W. Lehman
No. Amherst	Lorain	Dr. H. L. Hall
No. Baltimore	Wood	Dr. J. W. Stoner
No. Bend	Hamilton	
No. Lewisburg	Champaign	Mr. G. L. Freeman
No. Linndale, (3) P. O.	Cuyahoga	Mr. H. Gearity
No. Robinson	Crawford	Mr. James Morton*
Norwich	Muskingum	Mr. L. D. Wilson, Sec'y
Nottingham	Cuyahoga	Dr. W. O. Jenks
Oak Harbor	Ottawa	Mr. Ephraim Gordon
Oakhill	Jackson	Mr. Wm. Jenkins
Oakley	Hamilton	Dr. W. L. Milner
Oakwood	Paulding	Mr. W. E. Osborne
Oberlin	Lorain	Mr. E. L. Burge
Ohio City	Van Wert	Mr. S. A. Mapes
Olmstead Falls	Cuyahoga	Mr. H. B. Northrop
Orangeville	Trumbull	
Orrville	Wayne	Dr. A. A. Brooks
Osborn	Greene	Mr. Ora Beakley
Osgood	Darke	Mr. H. H. Bander
Osnaburg	Stark	Dr. W. D. Davis
Ostrander	Delaware	Dr. G. E. Cowles
Ottawa	Putnam	Dr. E. L. Tupper
Ottoville	Putnam	Dr. J. F. Ockuly*
Otway	Scioto	Mr. Simon Crow
Owensville, P. O. (4) ..	Clermont	Dr. G. G. Rutledge
Oxford	Butler	Mr. W. E. Calohan

(1) See Potsdam.

(2) See Highland.

(3) See Linndale.

(4) Boston.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Palestine	Pickaway	
Pancoastburg, P. O. (1)	Fayette	
Pandora	Putnam	
Pataskala	Licking	Mr. Frank McConn- aughey
Patriot	Gallia	
Patterson	Hardin	Mr. P. C. Breidenbach
Paulding	Paulding	Dr. Ira J. Dix
Payne	Paulding	Dr. J. E. Mulligan
Peebles	Adams	Dr. J. S. Berry*
Pemberville	Wood	Dr. R. J. Simon
Peninsula	Summit	Dr. W. N. Boerstler
Perrysburg	Wood	Dr. H. R. Roether
Perrysville	Ashland	Mr. D. W. Webster
Phillipsburg (2)	Montgomery	
Philo, P. O. (3)	Muskingum	Dr. G. B. Trout
Pickerington	Fairfield	
Piketon	Pike	Mr. S. H. Cutler
Pioneer	Williams	Mr. B. F. Hosmer
Pittsburg, P. O. (4)	Darke	
Plain City	Madison	Dr. E. S. Holmes
Plainfield	Coshocton	
Pleasant City	Guernsey	Mr. Harvey Scott*
Pleasant Hill	Miami	Mr. Daniel Brown
Pleasant Ridge	Hamilton	Mr. C. W. Acomb
Pleasantville	Fairfield	Mr. Chas. C. Hemy
Plymouth	Richland	Dr. Geo. J. Searle
Poland	Mahoning	Dr. C. R. Justice
Polk	Ashland	Dr. W. H. Rhinehart
Pomeroy	Meigs	Dr. R. E. Stobart
Portage	Wood	Mr. T. Fasnaugh
Port Clinton	Ottawa	Dr. H. J. Pool
Port Jefferson	Shelby	Dr. S. S. Crumbaugh
Port Washington	Tuscarawas	Dr. E. S. Dunn
Port William	Clinton	Mr. S. S. Thorpe
Potsdam, P. O. (5)	Miami	
Powhatan Point	Belmont	Mr. Franz Saner
Prairie Depot, P. O. (6)	Wood	
Proctorville	Lawrence	Dr. R. E. Atkinson
Prospect	Marion	Mr. G. F. Gast
Put-in-Bay	Ottawa	Mr. Adam Heidler
Quaker City	Guernsey	Mr. J. W. Parker
Quincy	Logan	Mr. G. Plummer

(1) Waterloo.

(2) See Center.

(3) Taylorville.

(4) Arnettville.

(5) New Lebanon.

(6) Freeport.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Racine	Meigs	Dr. C. N. Hayman
Rarden	Scioto	Dr. H. F. Clark
Ravenna	Portage	Mr. Lee W. Wood
Rawson	Hancock	Mr. Michael Smith,
Reading	Hamilton	Mr. Wm. K. Hausser
Rendville	Perry	Dr. Josiah S. Sessoms*
Republic	Seneca	Dr. F. C. Gilcher
Reynoldsburg	Franklin	Mr. B. F. Oram
Richmond (1)	Lake	
Richmond	Jefferson	Dr. Samuel Rothacker
Richwood	Union	Mr. C. W. Sloop
Ridgeway	Hardin	Dr. E. W. Crow
Ripley	Brown	Mr. G. M. Robb
Rising Sun	Wood	Mr. M. C. Mowen
Rochester	Lorain	Dr. J. C. Dignan
Rockcreek	Ashtabula	Dr. W. S. Weiss
Rockford	Mercer	Mr. O. Hedges
Rockport	Cuyahoga	
Rocky Ridge	Ottawa	Mr. John Krefunke
Rocky River	Cuyahoga	
Rogers	Columbiana	Mr. Geo. McCamon*
Rome (2)	Adams	
Roseville	Muskingum	Mr. G. B. Weaver
Rossville (3)	Darke	
Rushsylvania	Logan	Mr. W. H. Drum
Rushville	Fairfield	Dr. W. C. Lewis
Russellville	Brown	
Sabina	Clinton	Mr. H. C. Curtis
St. Bernard	Hamilton	Mr. Wm. Schullhof
St. Clairsville	Belmont	Dr. S. L. West
St. Henry	Mercer	
St. John	Auglaize	
St. Louisville	Licking	
St. Marys	Auglaize	Dr. B. E. Thomas
St. Paris	Champaign	Dr. C. A. Offenbacher
Salesville	Guernsey	Mr. J. W. Starr
Salineville	Columbiana	Dr. H. M. Calvin
Sarahsville	Noble	Dr. W. S. Williams
Savannah	Ashland	Mr. Jno. F. Brown
Scio	Harrison	Dr. G. D. Custer
Sciotoville	Scioto	
Scott	Van Wert	Mr. L. L. Beach
Sebring	Mahoning	Mr. J. E. Myers
Sedalia, P. O. (4)	Madison	Dr. E. B. Mead
Sekitan (5)	Hamilton	

(1) See Grand River.

(2) See Stouts.

(3) See Hagermans.

(4) Midway.

(5) See Addyston.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Senecaville	Guernsey	Dr. W. R. Scott
Sevenmile	Butler	Mr. Henry Jacobs
Seville	Medina	Dr. P. E. Beach
Shanesville	Tuscarawas	
Shawnee	Perry	Mr. Benjamin F. Trew
Shelby	Richland	Dr. W. M. Bland
Sherodsville	Carroll	Mr. M. R. Fickes
Sherwood	Defiance	Dr. H. C. Lindersmith
Shiloh	Richland	Dr. S. S. Holtz
Shreve	Wayne	Mr. V. D. Manson, Jr.
Sinking Springs	Highland	
Smithfield	Jefferson	Mr. Ross C. Moore
Smithville	Wayne	Dr. D. H. Morgan
Somerset	Perry	Dr. O. S. Iden
Somerville	Butler	Mr. L. W. Randall
South Bloomfield	Pickaway	Dr. C. E. Blacker
South Brooklyn, (1) ..	Cuyahoga	
South Charleston	Clark	Mr. John S. Brown
South Lebanon, P. O. (2)	Warren	Dr. A. D. Spence
South Point	Lawrence	Dr. C. W. McCoy*
South Salem	Ross	Dr. E. C. Lumbeck
South Solon	Madison	Dr. W. H. Queen
South Webster	Scioto	
South Zanesville	Muskingum	
Sparta	Morrow	Mr. S. G. Fowl
Spencerville	Allen	Mr. Fred Hirn
Springboro	Warren	Mr. L. A. Shumard
Springhills	Champaign	Mr. Quincy T. Eleyet
Spring Valley	Greene	Mr. L. S. Holland
Stockport	Morgan	Mr. M. C. Riley
Stouts, P. O. (3)	Adams	
Strasburg	Tuscarawas	Dr. J. C. Schutzbach
Struthers	Mahoning	
Stryker	Williams	Dr. C. F. Mignin
Sugarcreek	Tuscarawas	
Sugargrove	Fairfield	Dr. E. R. Brown
Summerfield	Noble	Mr. John Baughn
Summerford	Madison	
Sunbury	Delaware	Dr. G. H. Gerhardt
Swanton	Fulton	Mr. Frank Minnick, Clerk.
Sycamore	Wyandot	Dr. W. H. Wickham
Sylvania	Lucas	Mr. Geo. A. Crandall
Syracuse	Meigs	
Tarlton	Pickaway	Mr. J. B. Grove, Clerk

(1) See Brooklyn.

(2) Deerfield.

(3) Rome.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Taylorstown (1)	Muskingum	
Terrace Park	Hamilton	
Thornville	Perry	Dr. W. T. Stevens
Thurman, P. O. (2)...	Gallia	Dr. Gomer E. Jones
Tiltonville, P. O. (3)...	Jefferson	
Tippecanoe City	Miami	Mr. C. R. Moser
Tiro	Crawford	Dr. W. H. Guiss
Tontogany	Wood	Mr. E. G. Gill
Toronto	Jefferson	Mr. A. W. Goodlin
Trenton	Butler	Mr. Wilson Thompson
Trimble	Athens	Dr. H. D. Danford
Trotwood	Montgomery	
Tuscarawas	Tuscarawas.	Mr. M. A. Romig, Mayor
Uhrichsville	Tuscarawas.	Dr. James A. McCollam
Union City	Darke	Dr. J. E. Detamore
Uniontown, (4)	Muskingum	
Unionville Center	Union	Dr. C. O. McCune
Uniopolis	Auglaize	Dr. J. W. Hurlburt
Upper Sandusky	Wyandot	Dr. G. O. Maskey
Utica	Licking	Dr. G. W. Garrison
Van Buren	Hancock	Mr. J. E. Huntington, Mayor
Vandalia	Montgomery	Dr. W. H. Riley*
Vanlue	Hancock	Dr. Jas. L. Schrotz
Venedocia	Van Wert	
Vermilion	Erie	Dr. B. S. Horton
Versailles	Darke	Dr. C. T. Ryan
Vienna, (5)	Clark	
Vienna X Roads, P. O. (6)	Clark	Dr. E. A. Dye
Vinton	Gallia	Mr. Joel A. Pugh
Wadsworth	Medina	Dr. C. N. Lyman
Waldo	Marion	Dr. B. D. Osborn
Wapakoneta	Auglaize	Mr. A. Kohler
Warsaw	Coshocton	Mr. S. W. Willis
Washington	Guernsey	Mr. S. B. Lawrence
Washingtonville	Columbiana	Mr. Wm. F. Culler
Waterloo, (7)	Fayette	
Waterville	Lucas	Mr. H. F. Van Fleet
Wauseon	Fulton	Mr. D. C. Teeter

(1) See Philo.

(2) Centreville.

(3) Grover.

(4) See Fultonham.

(5) See Vienna X Roads.

(6) Vienna.

(7) Pancoastburg.

* In lieu of a Board of Health.

Village.	County.	Health Officer.
Waverly	Pike	Mr. James J. Emmitt
Waynesburg	Stark	Dr. Gustav A. Shane
Waynesfield	Auglaize	Mr. F. M. Berry
Waynesville	Warren	Dr. H. Q. Alexander
Webster	Darke	Mr. J. F. Byrd
Wellington	Lorain	Dr. R. G. Holland
West Alexandria	Preble	Mr. R. C. Hill
West Cairo	Allen	Dr. Geo. W. Henderson
West Carrollton	Montgomery	Mr. Geo. W. Deemer
West Chester	Butler	
West Cleveland	Cuyahoga	
West Elkton	Preble	Dr. Elwood Holaday
Western Star	Summit	Mr. Fred Becker
Westerville	Franklin	Mr. T. A. Conklin
West Farmington	Trumbull	
West Jefferson	Madison	Mr. W. R. Borland
West Lafayette	Coshocton	
West Leipsic	Putnam	Dr. G. E. Garwood
West Liberty	Logan	Dr. A. C. Brindle
West Manchester	Preble	Mr. Chas. B. Pierson
West Mansfield	Logan	Dr. H. A. Skidmore
West Middleburg	Logan	
West Millgrove	Wood	
West Milton	Miami	Dr. Gainor Jennings
Weston	Wood	Dr. J. W. Williams
West Park	Cuyahoga	
West Rushville	Fairfield	
West Salem	Wayne	Mr. Eli Rupert
West Union	Adams	Dr. James W. Bunn
West Unity	Williams	Mr. D. C. Peppard
West Wheeling	Belmont	
Wharton	Wyandot	Mr. B. W. Lee
Whitehouse	Lucas	Mr. W. K. Jones
Wilkesville	Vinton	Dr. G. W. Martin
Williamsburg	Clermont	Dr. J. P. Allen
Williamsport	Pickaway	Dr. G. C. Hayes
Willoughby	Lake	Mr. Jas. Maloney
Willshire	Van Wert	Mr. S. K. Cristy
Wilmington	Clinton	Dr. A. T. Quinn
Wilmot	Stark	Mr. O. C. Ricksecker
Winchester	Adams	Mr. Alfred Johnson
Winchester, (1)	Preble	
Windham	Portage	Mr. H. J. Higley
Winton Place	Hamilton	Mr. G. C. Wildman
Woodsfield	Monroe	Mr. A. S. Baker
Woodstock	Champaign	Mr. D. S. Poling
Woodville	Sandusky	Dr. R. N. Durbin
Worthington	Franklin	Mr. Bert Berrell

(1) See Gratis.

* In lieu of a Board of Health.

City.	County.	Health Officer.
Wren	Van Wert	Mr. P. G. Havis
Wyoming	Hamilton	Mr. Geo. Stoddard
Yellow Springs	Greene	Mr. Isaac Loe
Yorkshire	Darke	
Zaleski	Vinton	
Zanesfield	Logan	Dr. C. M. Wanzer
Zoar	Tuscarawas	Mr. Chas. J. Breymeir

ANNUAL REPORTS

OF

LOCAL BOARDS OF HEALTH

FOR THE

Year Ending December 31, 1902.

ANNUAL REPORTS OF BOARDS OF HEALTH.

OHIO STATE BOARD OF HEALTH.

OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, December 15, 1902.

To Boards of Health and Health Officers.

DEAR SIRs:—The law requires local boards of health to make an Annual Report on or before the 15th day of January of each year to the State Board of Health. (See Section 2148, R. S.) These reports under the amended law are for the Calendar Year. Will you therefore please answer the following questions as fully as possible? There is reason to believe that our health officers, sanitary policemen, etc., are, as a rule, much underpaid, and that the amount of money appropriated for the work of boards of health is greatly below what it should be, considering the importance of the duties placed upon them. An exchange of information upon this point will be of general use. Further information, not covered by the questions, concerning the important features of the work of your board, or sanitary condition of your city or village, will be gladly received.

Please mail your report by the 15th of January, if possible, as we desire to include your report in the Annual Report of the State Board of Health to the Governor.

Very respectfully,

C. O. PROBST, M. D.,

Secretary.

By order of the Board.

ANNUAL REPORTS OF BOARDS OF HEALTH

OF

City or village.	County.	Population.
Name of person making report.		Official position.
MEMBERS OF BOARD.		
Name.	Term expires.	Name.
		Term expires.
Health officer.		Clerk.

1. How much money was spent by the board of health during the year ending December 31, 1902?
2. How much, if any, of this sum was spent on account of smallpox?
3. What is the salary of the health officer; of the clerk, (chief clerk where there is more than one); of the sanitary policeman?
4. How many sanitary policemen does the board employ?
5. Are these employed during the whole year?
6. How many meetings were held by the board during the year?
7. If prosecutions were brought for violations of the health laws or orders of the board, please state the nature of such suits. If suit was brought by the board for any other reason, give briefly the nature and result of such suit.
8. Does the board keep a permanent record of births, deaths and infectious and contagious diseases?
9. How many nuisances were reported during the year?
10. How many were abated?
11. What system have you adopted for the collection of garbage, and how do you dispose of it?
12. Has your board appointed a milk inspector?
13. Does the board require a permit to sell milk?

Please furnish us with a copy of the rules and regulations of your board of health now in force.

INFECTIOUS DISEASES.

Number of Cases Reported During the Year.

(Give CASES only.)

Smallpox	Whooping Cough
Diphtheria	
Membranous Croup	Measles
Scarlet Fever	Other infectious diseases
Typhoid Fever	Total number of infectious diseases...

ANNUAL REPORTS OF LOCAL BOARDS OF HEALTH.

CITIES.

AKRON, SUMMIT COUNTY.

Estimated population, 50,000.

Person making report, A. A. Kohler, health officer.

Health officer, A. A. Kohler, M. D. Clerk, George B. Corson.

1. \$2,500.00.

2. \$200.00.

3. Health officer, \$720.00; clerk, \$100.00; sanitary policeman, \$1,200.00.

4. One.

5. Yes.

6. Ten.

7. One suit against tenant for not opening sewer; guilty. One suit against milk dealer for selling adulterated milk; was found guilty and fined \$50.00 and costs. Suit against soap factory for maintaining a nuisance; was ordered by the court to cease operation the 1st of January, 1903.

8. Yes.

9. 1,600.

10. 1,600.

11. We have adopted no system for the collection of garbage. There is a private company that collects garbage three times a week for 15 cents a week. They haul it outside the city. At the present time they are filling up a gulley with it.

12. Yes.

13. Yes.

14. We have none printed on hand at the present time.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 29; membranous croup, 4; scarlet fever, 126; typhoid fever, 61; whooping cough, 36; measles, 31; other infectious diseases, 2. Total number of infectious diseases, 292.

ALLIANCE, STARK COUNTY.

Estimated population, 10,000.

Person making report, P. W. Welker, M. D., health officer.

Health officer, P. W. Welker, M. D. Clerk, A. W. Green.

1. \$1,541.87.

2. \$992.02.

3. Health officer, \$100 per year; clerk, \$25 a year; sanitary policeman, \$40 per month.

4. One.

5. No.

6. Sixteen.

7. Two suits brought for connecting with sanitary sewer without permit; both dismissed.

8. Not of births.

9. 138.

10. 138.

11. None. Some burn; others have it hauled out into the country.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; scarlet fever, 36 typhoid fever, do not report; whooping cough, do not report; measles, do not report.

ASHTABULA, ASHTABULA COUNTY.

Person making report, E. N. Campbell, clerk.

Health officer, Dr. A. W. Hopkins.

Clerk, E. N. Campbell.

1. \$1,732.72.

2. \$134.

3. Health officer, \$100 per year; clerk, \$240 per year; sanitary policeman, \$600 per year.

4. One.
5. Yes.
6. Fifteen.
7. One for throwing fish offal in alley; fined the costs.
8. Yes.
9. 400.
10. 400.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 4; membranous croup, 3; scarlet fever, 14; typhoid fever, are not reported; whooping cough, are not reported; measles, are not reported; other infectious diseases, are not reported. Total number of infectious diseases, 26.

BELLAIRE, BELMONT COUNTY.

Estimated population, 9,946.

Person making report, Dr. D. W. Boone, health officer.

Health officer, Dr. D. W. Boone.

1. \$2,109.33.
2. \$1,709.33.
3. Health officer, \$200; sanitary policeman, \$200.
4. One.
5. Yes.
6. Seven.
7. None.
8. Yes; deaths, infectious and contagious diseases, but not of births.
9. 450.
10. 450.

11. Removed by independent haulers and thrown out on a low creek bottom which is overflowed three or four times a year. Night soil is buried on the same bottom. The council has purchased a tract of land on a higher bottom and near dwelling houses for dumping purposes. I think when the city starts to use the land there will be suits in court to restrain them from using it for garbage. I have been trying to get council to let by contract the

removal of garbage from the city; we would get better service.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 10; diphtheria, 1; membranous croup, 5; scarlet fever, 23; typhoid fever, 177; whooping cough, 3. Total number of infectious diseases, 219.

BOWLING GREEN, WOOD COUNTY.

Estimated population, 6,000.

Person making report, A. Ordway, health officer.

Health officer, A. Ordway.

Clerk, Alex Williamson.

1. \$250.
2. Not any.
3. Health officer, \$10.40 per month; clerk, \$6 per month.
4. Not any.
5. They are.
6. Semi-monthly.
7. None.
8. Only what I keep.
9. Cannot tell.
10. All that was reported.
11. We haul it to the dump ground.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 17; membranous croup, 2; scarlet fever, 23; typhoid fever, 5; measles, 64.

BUCYRUS, CRAWFORD COUNTY.

Estimated population, 8,000.

Person making report, Dr. A. H. McCrory, health officer.

Health officer, Dr. A. H. McCrory.

Clerk, Charles Griffith.

1. \$605.85.
2. Not any.
3. Health officer, \$150; clerk, \$25; sanitary policeman, \$300.
4. One.

5. Yes.
6. Eleven.
7. No prosecutions.
8. Yes, of deaths and contagious diseases. Just began birth record January 1, 1903.

9. Five.

10. Five.

11. Garbage is collected by cart or wagon and taken outside of city limits and buried.

12. No; health officer examines the milk once or twice a month.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 46; typhoid fever, 18; whooping cough, 18; measles, 51; other infectious diseases, 14. Total number of infectious diseases, 148.

CAMBRIDGE, GUERNSEY COUNTY.

Estimated population, 11,000.

Person making report, T. C. Stanley, health officer and secretary.

Health officer and clerk, T. C. Stanley.

1. \$1,500.75.

2. \$690.92.

3. Health officer, \$360 per year and fees for inspecting sewers and house plumbing; clerk, \$25 per year; sanitary policeman, \$2 per day when on duty.

4. Two; none regular.

5. Only in cases of smallpox, etc.

6. Ten regular and two special.

7. None.

8. Yes.

9. 140.

10. 140.

11. We have no regular system. Swill is collected by farmers for hogs, and garbage is hauled away by teamsters and paid by parties having it done.

12. The health officer inspects milk.

13. Yes.

Cases of infectious diseases reported: Smallpox, 4; diphtheria, 13;

membranous croup, 1; scarlet fever, 17; typhoid fever, 16; measles, 24; other infectious diseases, 3. Total number of infectious diseases, 78.

CANTON, STARK COUNTY.

Estimated population, 40,000.

Person making report, J. F. Marchand, M. D., health officer.

Health officer and clerk, J. F. Marchand, M. D.

1. \$5,352.35.

2. \$962.35.

3. Health officer and clerk, \$900 per year; sanitary policeman, \$80 per month, and he also receives \$10 per month as milk inspector.

4. One.

5. Yes.

6. Twelve.

7. No prosecutions were brought.

8. Births just started January, 1903.

Deaths recorded: Smallpox, diphtheria and scarlet fever reported and recorded.

9. 615.

10. 550.

11. We have just completed a new garbage furnace and hope to have during the future all garbage systematically collected and cremated. No definite plan of collection has as yet been established, but will be this spring and summer.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Smallpox, 14; diphtheria, 45; scarlet fever, 21. Total number of infectious diseases, 80.

CHILLICOTHE, ROSS COUNTY.

Estimated population, 16,000.

Person making report, Dr. W. S. Scott, health officer.

Health officer, Dr. W. S. Scott.

Clerk, James I. Boulger.

1. \$3,871.12.
2. \$295.
3. Health officer, \$500; clerk, \$150; sanitary policeman, \$600.
4. One.
5. Yes.
6. Thirty.
7. One prosecution for offering for sale decomposed meat. One for refusal to clean vault. Three for refusal to abate sanitary nuisance on property.
8. Yes.
9. 492.
10. 430.
11. Four garbage carts are employed to haul the garbage to the dumping ground, which is outside of the city limits.
12. Inspections of dairies are made by health officer.
13. Yes.

Cases of infectious diseases reported: Smallpox, 6; diphtheria, 6; scarlet fever, 6; typhoid fever, 87; whooping cough, not reported; measles, 28, many cases not reported. Total number of infectious diseases, 133. It is impossible to get an accurate count of typhoid, as many cases of malaria are called typhoid.

CINCINNATI, HAMILTON COUNTY.

Person making report, Joseph M. Ray, chief clerk.

Health officer, Clark W. Davis, M. D. Clerk, J. M. Ray.

1. \$46,228.88.
2. \$3,829.42.
3. Health officer, \$3,000; clerk, \$1,200; sanitary policeman, \$60 per month.
4. Twenty-six.
5. Yes.
6. Daily; Board of Public Service.
7. For selling adulterated milk, 2; defendants convicted, fined \$50 and costs each. For removing placard in case of contagious disease, 1; conviction

before magistrate, fined \$25; reversed in common pleas on technical grounds. For failure to report contagious diseases, 4; convictions in each case before magistrate and defendants fined. For failure to obey order to make sewer connections, 5.

8. Yes.
9. 12,655.
10. 163.
11. Contract system. Reduction company.
12. Yes.
13. Yes.

Cases of infectious diseases reported: Smallpox, 448; diphtheria and membranous croup, 418; scarlet fever, 860; typhoid fever, 1,038; Whooping cough, 140; measles, 1,164; other infectious diseases, 718. Total number of infectious diseases, 4,786.

CIRCLEVILLE, PICKAWAY COUNTY

Estimated population, 7,000.

Person making report, W. H. Dunkel, health officer and secretary.

Health officer and clerk, W. H. Dunkel.

1. \$170.57.
2. We spent \$7.57 for quarantine for smallpox, but no case.
3. Health officer, \$120.
4. None; health officer also acts as clerk and sanitary police.
6. Eight.
7. None.
8. Yes. We are keeping record of births also this year.
9. 150. Most of our nuisances hog pens and privy vaults.
10. All of the nuisances were abated.
11. The most of our garbage is collected and hauled out of city limits and buried in city nuisance ground; our dead hogs, cattle and horses are hauled to the fertilizer and disposed of there. Our greatest need is a better sewer system. We have a sewer

fund in treasury to build a sewer, but some of the taxpayers filed an injunction against said sewer.

12. No. I am supposed to do all the work the board of health has to do.

13. They have not yet, but they have same under consideration.

Cases of infectious diseases reported. Diphtheria, 4; typhoid fever, 87; whooping cough, 3; measles, 317. Total number of infectious diseases, 412.

2. Interest, \$5,628.46; notes, \$45,000; all other expenditures, \$150,000; total, \$200,628.46.

3. Health officer, \$2,700; clerk, \$1,500; sanitary policeman, \$900.

4. Twenty.

5. Yes.

8. Yes.

9. 56,558.

11. Chamberlain System of reduction. We are operating under a five-year contract with the Buckeye Refuse Destruction Co., that is using that system. We pay them \$69,400 per year for the collection, removal and reduction of all garbage in the city.

12. Yes.

13. Yes, and charge \$1 per year.

Cases of infectious diseases reported: Smallpox, 1,248; diphtheria, 1,332; membranous croup, 44; scarlet fever, 1,027; typhoid fever, 485; whooping cough, 223; measles, 2,225; other infectious diseases, 377. Total number of infectious diseases, 6,961.

CLEVELAND, CUYAHOGA COUNTY.

Estimated population, 381,768, census of 1900, 400,000 for statistical purposes.

Person making report, Frank Combes, secretary public health division.

Health officer, Dr. Martin Friedrich. Clerk, Frank Combes.

1. For garbage, \$69,400; for all other expenditures, \$252,059; grand total expended, \$321,459.00.

CONTAGIOUS DISEASES FOR THE YEAR 1902, BY MONTHS.

	Diphtheria.	Membr. Croup.	Scarlet Fever.	Typhoid Fever.	Measles.	Whooping Cough.	Smallpox.	Varicella.	Erysipelas.	Mumps.	Puerperal Fever.	Total.
January	131	6	110	75	129	4	10	58	4	.....	.....	527
February	71	7	69	26	212	.....	8	29	4	1	.....	427
March	82	4	96	53	446	13	5	46	8	.....	.....	755
April	84	4	77	15	470	3	16	35	.....	1	.....	705
May	70	4	76	59	615	4	82	28	1	.....	.....	939
June	86	2	75	25	226	13	168	31	4	.....	.....	630
July	53	.....	69	44	85	100	143	16	3	.....	.....	513
August	59	3	66	74	16	28	255	7	1	.....	.....	509
September	70	.....	70	16	7	4	340	12	.....	.....	.....	519
October	150	3	86	19	3	9	118	19	1	.....	.....	408
November	240	6	123	35	2	12	64	25	2	.....	.....	509
December	236	5	110	44	14	33	39	38	.....	.....	1	520
Total	1,332	44	1,027	485	2,225	223	1,248	344	28	4	1	6,961

CONNEAUT, ASHTABULA COUNTY. Baxter, health officer.

Estimated population, 7,300.

Person making report, Robert J.

Health officer, R. J. Baxter.

Clerk, Ed C. Thayer.

1. \$617.35.

2. None.
3. Health officer, \$12.50 per month; clerk, \$50 per year; sanitary policeman, \$25 per month.

4. One.
5. Yes.
6. Twenty-five.
7. None.
8. Yes.

11. Three city scavengers, endorsed by board of health and all garbage removed to city dumping ground outside city limits.

12. No.

13. Yes; passed by board during 1902.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 6 typhoid fever, 79; measles, 3. Total number of infectious diseases, 91.

COSHOCTON, COSHOCTON COUNTY

Estimated population, 7,500.

Person making report, Dr. J. E. Foster, health officer.

Health officer, J. E. Foster, V. S.

Clerk, W. M. Smith.

1. \$436.55.

2. None.

3. Health officer, \$30 per month; clerk, \$50 per year.

4. None.

6. Nine.

7. Two persons were arrested by the board of health, one for refusing to abate a nuisance arising from a dog kennel being too near a dwelling. The other was arrested for violating the ordinance regulating slaughtering within the city. Both were fined and assessed \$1 and costs.

8. The board keeps a permanent record of deaths and contagious and infectious diseases.

9. Don't know how many were reported, but all were abated that were reported.

10. Three hundred and one nuisances were abated (many more than were reported).

11. Garbage is collected by persons engaged in the swine industry outside of city. At times some garbage becomes a nuisance and we order it hauled to the dump ground.

12. Am sorry they have not.

13. No.

Cases of infectious diseases reported: Diphtheria, 38; scarlet fever, 28; typhoid fever, 41; measles, 4; other infectious diseases, 14. Total number of infectious diseases, 143.

DAYTON, MONTGOMERY COUNTY.

Estimated population, 90,000.

Person making report, Nelson Emmons, Sr., clerk.

Health officer, C. W. King, M. D.

Clerk, Nelson Emmons, Sr.

1. \$12,591.76.

2. \$5,786.02.

3. Health officer, \$1,100 per annum; clerk, \$1,000 per annum; sanitary policeman, \$720 per annum.

4. Three; also have plumbing inspector, salary, \$1,100; dairy and live stock inspector, salary, \$700; bacteriologist, salary, \$250.

5. Yes.

6. Fifteen.

7. Three parties were prosecuted for placing filth in alleys, and refusing to remove same when ordered so to do; one case was dismissed; others let off on payment of costs and promise to comply with orders, which was done. Two were prosecuted for selling milk containing formaline; one fined \$50 and costs; the other, still pending.

8. Yes.

9. 3,755.

10. 3,509.

11. Under control of board of city affairs.

12. Through the summer only.

13. No. The subject now under consideration by the board.

Cases of infectious diseases reported: Smallpox, 39; diphtheria, 96;

membranous croup, 3; scarlet fever, 68; typhoid fever, 97; measles, 740; other infectious diseases (chicken pox), 14. Total number of infectious diseases, 1,059.

DEFIANCE, DEFIANCE COUNTY

Population, 9,000.

Person making report, Dr. E. E.

K. Chapman, health officer.

Health officer, Dr. E. E. K. Chapman.

Clerk, F. J. Papenhagen.

1. \$1,363.18.

2. None.

3. Health officer, \$25 per month; clerk, \$10 per month; sanitary policeman, \$40 per month.

4. One.

5. Yes.

6. Eighteen.

7. No suits of any kind.

8. No record of births. Records of deaths, infectious and contagious diseases are kept and reported to state board of health.

9. Five.

10. Five.

11. Let contract to city scavenger, who has been hired by the month, who furnishes as many teams as may be necessary to keep the city clean. Garbage is used for fertilizer purposes, and contractor is required to furnish a dumping ground, to be approved by the board of health.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 10; typhoid fever, 6; measles, 4; other infectious diseases, 6. Total number of infectious diseases, 27.

DELAWARE, DELAWARE COUNTY

Person making report, Dr. O. W. Bonner, health officer.

Health officer and clerk, Dr. O. W. Bonner.

1. \$3,000.

2. \$1,500.

3. Health officer, \$300; sanitary policeman, \$250.

4. One.

5. No; for about five months.

6. Twenty-four.

7. No prosecutions.

8. Yes.

9. Twenty-four.

10. Twenty.

11. We employ a sanitary contractor, who gathers the garbage and deposits it in trenches, which is afterwards covered with earth.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 24; scarlet fever, fever, 5; typhoid fever, 28; whooping cough, 10; measles, 30. Total number of infectious diseases, 87.

EAST LIVERPOOL, COLUMBIANA COUNTY.

Estimated population, 20,000.

Person making report, Dr. C. B. Ogden, health officer.

Health officer, Dr. C. B. Ogden.

Clerk, J. T. Herbert.

1. \$2,849.18.

2. None.

3. Health officer, \$40 per month; clerk, \$3 per meeting; sanitary policeman, \$65 per month.

4. One.

5. Yes.

6. Nine.

7. None.

8. Yes.

9. Seventy.

10. Seventy.

11. The city has a contract with the Sanitary Reduction Company to burn the garbage at \$100 per month. This amount is charged up to the sanitary fund and is included in the \$2,849.18.

12. No.

13. Yes.

Cases of infectious diseases reported: Diphtheria, 24; membranous croup, 1; scarlet fever, 124; typhoid fever, 21; measles, 10. Total number of infectious diseases, 180.

ELYRIA, LORAIN COUNTY.

Estimated population, 10,000.

Person making report, Dr. W. E. Hart, health officer.

Health officer and clerk, Dr. W. E. Hart.

1. About \$400.

2. Nearly all of the above; the township, however, paid part of this.

3. Health officer, \$200 a year; sanitary policeman, \$45 per month.

4. One.

5. Yes.

6. We aim to have one meeting every month; will average ten a year.

7. None.

8. All the above.

9. 117.

10. 117.

11. Team and sealed barrels.

12. No; health officer often tests the milk.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 34; membranous croup reported as diphtheria; scarlet fever, 23; typhoid fever, No record; whooping cough, none; infectious diseases, none. Total number of infectious diseases, 659.

FINDLAY, HANCOCK COUNTY.

Estimated population, 20,000.

Person making report, Amos Beardsley, health officer.

Health officer, Amos Beardsley.

Clerk, C. W. Benedict.

1. \$2,127.30.

2. \$211.33.

3. Health officer, \$60 per month; clerk, \$2 per meeting; sanitary policeman, \$55 per month.

4. Two.

5. One regular; one special, employed about one-third of the time.

6. Twenty-five.

7. None.

8. Of deaths and of infectious and contagious diseases only.

9. 1883.

10. Nearly all.

11. There has been no system of garbage collection adopted. There are a number of garbage collectors who make contracts with the people and charge them according to the amount of garbage they have to move. It is not a satisfactory way. The city has a dumping grounds, which is well taken care of. It is under the supervision of the board of health.

12. Yes.

13. No; but is going to in the future.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 12; membranous croup, 1; scarlet fever, 39; typhoid fever, 73; measles, 5; chicken pox, 34. Total number of infectious diseases, 169.

FOSTORIA, SENECA COUNTY.

Estimated population, 7,883.

Person making report, W. N. Caldwell, health officer.

Health officer, W. N. Caldwell.

Clerk, B. B. Campbell.

1. \$1,200.

2. \$100.

3. Health officer, \$660; clerk, \$100.

4. None.

6. Nine.

7. Two arrests for violating quarantine law.

8. Yes.

9. Don't know.

10. All.

11. City collects. Dispose of garbage in an old brick yard.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 1; scarlet fever, 4; typhoid fever, 7; whooping cough, 30. Total number of infectious diseases, 45.

FREMONT, SANDUSKY COUNTY.

Estimated population, 8,750.

Person making report, Dr. O. C. Vermilya, health officer.

Health officer, Dr. O. C. Vermilya.

Clerk, Adam Keller.

1. About \$700.

2. About \$275.

3. Health officer, \$150 per year; clerk, \$25 per year; sanitary policeman, \$40 per month, six-months.

4. One.

5. Six months.

6. Ten.

8. Yes.

9. 210.

10. 170.

12. Health officer inspects milk.

13. No.

Cases of infectious diseases reported: Smallpox, 7; diphtheria, 3; scarlet fever, 13; typhoid fever, 18; measles, 21. Total number of infectious diseases, 62.

GALION, CRAWFORD COUNTY.

Estimated population, 7,280.

Person making report, Dr. H. H. Hartmann, health officer.

Health officer and clerk, Dr. H. H. Hartmann.

1. \$627.50.

2. \$109.00.

3. Health officer and clerk, \$15 per month; sanitary policeman, \$30 per month.

4. One.

5. Yes.

6. Twenty.

7. None.

8. Deaths and infectious and contagious diseases.

9. No record kept by sanitary policeman.

10. 762.

11. No system; private collection.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 6; scarlet fever, 7; typhoid fever, 23; measles, 62; other infectious diseases, 13. Total number of infectious diseases, 112.

GALLIPOLIS, GALLIA COUNTY.

Estimated population, 5,500.

Person making report, Dr. Fred A. Cromley, health officer.

Health officer, Dr. F. A. Cromley.

Clerk, W. H. Belcher.

1. \$1,331.68.

2. \$1,239.28.

3. Health officer, \$200 per annum; clerk, \$100 per annum; sanitary policeman, \$100 per annum.

4. One.

5. Yes.

6. Fifteen meetings.

8. Deaths only.

9. 150.

10. All.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 18; diphtheria, 5; typhoid fever, 10. Total number of infectious diseases, 33.

GLENVILLE, CUYAHOGA COUNTY.

Estimated population, 6,000.

Person making report, Charles F. Dietz, health officer.

Health officer, Charles F. Dietz.

Clerk, M. W. Miles.

3. Health officer, \$50 per month; clerk, \$100 per year.

4. None.

5. None.

6. First and third Tuesday evenings in each month.

8. Yes.

11. Collection of garbage daily; sent to the Newburgh Reduction Company.

12. No.

13. No.

GREENVILLE, DARKE COUNTY.

Estimated population, about 7,000.

Person making report, B. T. Hughes, secretary.

Health officer, E. C. Ballard.

Clerk, B. T. Hughes.

1. About \$500; including the disposition of garbage (about \$1,200).

2. None.

3. Health officer, \$200; clerk, \$150; sanitary policeman, 20 cents per hour for any service performed.

4. Two.

5. Only certain periods and paid at rate of 20 cents per hour.

6. About 12.

8. Yes.

9. Possibly 50.

10. All as far as we know and have reports on.

11. Rent garbage grounds outside city and hire by the year a scavenger, who furnishes wagon and tank to gather same. Such disposition has been satisfactory to the board and city, as it is kept well out of the way and very few complaints.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3. Total number of infectious diseases, 3.

HAMILTON, BUTLER COUNTY.

Estimated population, 28,000.

Person making report, Dr. Aug. Schumacher, health officer.

Health officer, Dr. Aug. Schumacher. Clerk, M. O. Burns.

1. \$9,000.

2. About \$8,500.

3. Health officer, \$50 per month; clerk, \$100 per month; sanitary policeman, \$60 per month.

4. One.

5. Yes.

8. Yes.

9. Fifty.

10. Forty-eight.

11. The garbage is collected in a wagon and dumped about one-quarter of a mile below town.

12. The health officer and meat and milk inspectors are all one.

13. Yes.

Cases of infectious diseases reported: Smallpox, 44; diphtheria, 13; membranous croup, 6; scarlet fever, 10. Total number of infectious diseases, 73.

IRONTON, LAWRENCE COUNTY.

Estimated population, 14,000.

Person making report, Dr. J. W. Lowry, health officer.

Health officer, Dr. J. W. Lowry.

Clerk, T. J. Hays.

1. I do not know; refer to city clerk.

2. All spent on smallpox, but what was spent for small salaries.

3. Health officer, \$150 per year; clerk, \$50 per year; sanitary policeman, \$45 per month.

4. One.

5. Yes.

6. Regular meetings first Monday each month.

7. None.

8. No record of births; yes to the rest.

9. Don't know.

10. Don't know.

11. None; city council pretends to dispose of garbage.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 148; diphtheria, 1; typhoid fever, 7; measles, 3. Total number of infectious diseases, 159.

KENTON, HARDIN COUNTY.

Estimated population, 8,000.

Person making report, R. V. Coutts, secretary.

Health officer, J. H. Bonham.

Clerk, R. V. Coutts.

1. About \$350.

2. All for smallpox.

4. All policemen act as sanitary officers.

5. Yes.

6. Twelve.

8. Yes.

9. One, namely fertilizer factory.

10. None.

11. Regular hired man to collect garbage and same is burned.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Scarlet fever, 26; measles, 206. Total number of infectious diseases, 232.

LANCASTER, FAIRFIELD COUNTY.

Estimated population, 10,000.

Person making report, Dr. F. P. Stuke, health officer.

Health officer, Dr. F. P. Stuke.

Clerk, H. W. Brink.

1. \$262.25.

2. None.

3. Health officer, \$200; clerk \$50.

4. None.

6. Seven.

7. There were no prosecutions brought in the past year. In several cases where the orders of the board were disregarded.

8. No.

9. 239.

10. 211.

11. None. The greater portion of the garbage is hauled to the dumping ground, where some of it is burned and the remainder left to decay.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 7; membranous croup, 2; scarlet fever, 9; measles, 3; chicken pox, 10. Total number of infectious diseases, 32.

LIMA, ALLEN COUNTY.

Estimated population, 25,000.

Person making report, Dr. E. E. McCall, health officer.

Health officer, Dr. E. E. McCall.

Clerk, F. C. Beam.

1. \$4,371.68.

2. \$1,648.09.

3. Health officer, \$50.00 per month; city clerk's pay; sanitary policeman, \$1.60 per day.

4. Four.

5. Half time during winter, November 1st to April 1st.

6. There were but eight regular meetings. Other times no quorum was present.

7. None.

8. Yes.

9. 2,183.

10. 2,167.

11. Private individuals dispose of their own garbage. Some is burned on premises and some hauled to garbage grounds, where it is burned or buried. We have no fund except \$600 per year paid to the man who furnishes and takes care of garbage grounds. We need a crematory and public carts to collect garbage.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 10; diphtheria, 63; membranous croup, 6; scarlet fever, 80,

typhoid fever, not reported; whooping cough, not reported; measles, 89; other infectious diseases, 13. Total number of infectious diseases, 261.

LORAIN, LORAIN COUNTY.

Estimated population, 19,000.

Person making report, E. V. Hug, M. D., health officer.

Health officer, Edward V. Hug, M. D.

Clerk, Florence Steinhoff.

1. \$3,866.32.

2. \$459.92.

3. Health officer, \$50 per month; clerk, \$5 per month; sanitary policeman, \$60 per month.

4. One.

5. Yes.

6. Sixteen.

7. One for violation of plumbing rules not venting sink; plumber was fined the costs of prosecution.

8. Yes.

9. No record is kept.

10. All reported were abated.

11. We have a five-year contract with a man who removes all garbage as it accumulates; he is paid \$1,000.00 per year.

12. Yes.

13. Ordinance now being drawn requires it and provides for inspection of dairies.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 18; scarlet fever, 38; typhoid fever, 17; whooping cough, 2; measles, 323; other infectious diseases, 24. Total number of infectious diseases, 424.

MANSFIELD, RICHLAND COUNTY.

Person making report, J. Harvey Craig, M. D., health officer.

Health officer, J. Harvey Craig, M. D.

3. Health officer, \$25 per month; clerk, \$100 per month; sanitary policeman, \$60 per month.

4. One.

5. Yes.

7. None.

8. Yes.

9. No record kept.

10. No record kept.

11. Garbage is collected by contract for one year. All garbage is disposed of at the sewage disposal works.

12. No.

13. Yes.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 16; scarlet fever, 15; typhoid fever, no record kept; measles, 5. Total number of infectious diseases 38.

MARIETTA, WASHINGTON COUNTY.

Estimated population, 14,000.

Person making report, J. B. McClure, M. D., health officer.

Health officer, J. B. McClure, M. D.

Clerk, J. L. Mason, M. D.

2. None.

3. Health officer, \$200; clerk, \$120; sanitary policeman, \$600.

4. One.

5. Yes.

6. Eighteen.

7. Two cases for dumping night soil in city limits; both fined.

8. Yes.

11. No special rule at present, but in near future expect to have some definite plan, as we have just let a contract for the construction of a new crematory.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Diphtheria, 10; membranous croup, 1; scarlet fever, 27; typhoid fever, 74; measles, 3. Total number of infectious diseases, 115.

MARION, MARION COUNTY.

Estimated population, 15,000.

Person making report, E. H. Raffensperger, D. D. S., clerk.

Health officer, have none.

Clerk, Dr. E. H. Raffensperger.

1. \$5,450.

2. \$4,650.

3. Clerk, \$10 per month, sanitary policeman, \$50 per month.

4. One.

5. Yes.

6. About twenty.

7. None.

8. All but births.

11. Private collectors who collect garbage and night soil under the direction of the sanitary policeman, citizens paying for what they have removed.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 22; diphtheria, 5; scarlet fever, 32; typhoid fever, 6; measles, 45; chicken pox, 42. Total number of infectious diseases, 152.

MARTINS FERRY, BELMONT COUNTY.

Estimated population, 9,000.

Person making report, R. A. Lindemuth, health officer.

Health officer, R. A. Lindemuth.

Clerk, Joseph Hanes.

1. \$603.01,

2. Nothing.

3. Health officer, \$2 per day for time actually employed; clerk, \$25 per year.

4. None.

6. Eighteen.

7. Health officer vs. L. A. Rolf & Co., sewerage; favor city. Health officer vs. O. Zane & Co., privy vault full; favor city. Health officer vs. James Alexander, privy vault full, favor city. Health officer vs. John Passe-

fine, throwing garbage in street; in favor of city. City marshal vs. Barrett & Co., throwing manure in alley; in favor of city.

8. Yes.

9. About 800.

10. All.

11. During the last six months of last year we paid C. C. Johnson \$30 per month and all other money he could collect according to the rules and regulations of the board of health. He is the only collector we ever had who was under bond. We bury all garbage.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 21; membranous croup, 2; scarlet fever, 30; typhoid fever, 29; whooping cough, 2; measles, 3; other infectious diseases, 1. Total number of infectious diseases, 88.

MASSILLON, STARK COUNTY.

Estimated population, 11,944.

Person making report, Thos. H. Seaman, health officer and acting clerk of board.

Health officer and acting clerk, T. H. Seaman.

1. \$1,876.47.

2. Expense of quarantine; fees of attending physicians paid by township.

3. Health officer, \$30 per month; clerk, acting without compensation; sanitary policeman, five months at \$20, seven months at \$40.

4. One.

5. Yes.

6. Thirteen regular; four special.

7. No suits instituted during the year.

8. Yes, also all miscellaneous permits issued under ordinances, etc.

11. No systematic plan as yet. At last session of the city council, the matter of investigating as to methods of disposal and plans for collecting

were referred to a committee and myself, to take up the matter with the local board of health; and the subject matter so referred will be presented by me at the regular meeting of the board February 4.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 20; scarlet fever, 15; typhoid fever, 12; measles, 5. Total number of infectious diseases, 53.

Note—I have good cause to believe that some physicians neglect to report, as required.

MIDDLETOWN, BUTLER COUNTY

Estimated population, 9,215.

Person making report, Dr. G. D. Lummis, health officer.

Health officer and clerk, Dr. G. D. Lummis.

1. \$1,498.37.

2. \$784.42.

3. Health officer and clerk, \$200; sanitary policeman, \$35 per month.

4. One.

5. Yes.

6. Six.

7. None.

8. Yes.

11. Removed by private parties, who give \$200 bond. Dumped into Great Miami River below city.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 20; diphtheria, 2; membranous croup, 2; scarlet fever, 6; typhoid fever, about 8; whooping cough, not reported; measles, not reported. Total number of infectious diseases, 38.

MT. VERNON, KNOX COUNTY.

Estimated population, 8,000.

Person making report, Dr. H. W. Blair, health officer.

Health officer, H. W. Blair, M. D.

Clerk, Ed Parmenter.

1. \$4,986.17.

2. \$4,251.93.

3. Health officer, \$160; clerk, \$30 per year; sanitary policeman, \$420 per year.

4. One.

5. Yes.

6. Twelve regular; 12 special meetings; total, 24.

8. All except births.

9. At least 100.

10. All were abated.

11. Slops are hauled to country for hog feed. Stable manure is taken by farmers for fertilizer. Our garbage wagon takes the balance to the garbage grounds and there it is burned or buried.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 14; diphtheria, 14; scarlet fever, 1. Total number of infectious diseases, 29.

NELSONVILLE, ATHENS COUNTY.

Estimated population, 6,500.

Person making report, Dr. N. Hill, health officer and clerk.

Health officer and clerk, Dr. N. Hill.

1. \$344.55.

2. None.

3. Health officer, \$12.50; clerk, \$4; sanitary policeman, \$7 in winter, and \$10 in summer.

4. One.

5. Yes.

6. Twelve.

7. None.

8. Yes.

9. Seventy-five.

10. Sixty.

11. Have property owners and tenants to gather and haul out and dump and burn, if possible.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 24; typhoid fever, 25; measles, 2; other infectious diseases, 1. Total number of infectious diseases, 54.

NEWARK, LICKING COUNTY.

Estimated population, 20,000.

Person making report, Dr. Henry Day, health officer.

Health officer, Dr. Henry Day.

Clerk, Walter C. Symons.

1. \$6,931.08.

2. \$5,991.08. I can't get the amount exact; some of 1901 expense paid in 1902.

3. Health officer, \$200 per year; clerk, \$40 per year; sanitary policeman, \$600 per year.

4. One regular; an extra man when needed.

5. One for nine to ten months.

6. Nine.

7. Suit against Dr. D. H. Miller, failure to report a smallpox case of his wife, Mrs. Miller, and his denying her having had smallpox. Drs. Probst, Hatch, Speer and Stephan, after examination of her person, testified she had had smallpox, but the jury decided in favor of Miller; he was acquitted.

9. About 130.

10. 105.

11. We have a dumping ground, where all garbage is buried; hauled there at the expense of the people. We have no regular garbage wagon. It would be better if we had.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 40; diphtheria, 24; membranous croup, 8; scarlet fever, 77; typhoid fever, no record; whooping cough, no record; measles, no record. Total number of infectious diseases, 149.

NEWBURGH, CUYAHOGA COUNTY.

Estimated population, 7,000.

Person making report, G. C. Kerr, health officer.

Health officer and clerk, H. H. Bohing.

1. I think about \$350.

2. Mostly all.

3. Health officer, \$1.75 per day; sanitary policeman, \$1.75 per day.

4. One.

5. They are not. Average about three or four days per month.

6. The hamlet trustees hold twelve meetings a year. They are the board of health and appoint health officer and sanitary policeman.

7. There were no suits of this nature brought during the present year.

8. The health officer keeps a record of all smallpox cases.

9. Two.

10. Two.

11. Not any to my knowledge.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 5.

NEW PHILADELPHIA, TUSCARAWAS COUNTY.

Estimated population, 6,500.

Person making report, George H. Peck, M. D., health officer.

Health officer, George H. Peck, M. D. Clerk, J. F. Denison.

1. \$763.73.

2. \$559.40.

3. Health officer, \$144 per year; clerk, \$25 per year; sanitary policeman, \$52.33.

4. One.

5. Yes.

6. Eight.

8. Of all except births.

9. Fifty-one.

10. Fifty-one.
11. Deposited on ground provided by the city.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 12; scarlet fever, 11; typhoid fever, 5; measles, 5; other infectious diseases, 10. Total number of infectious diseases, 48.

NORWOOD, HAMILTON COUNTY.

Estimated population, 9,000.

Person making report, Dr. J. C. Cadwallader, health officer.

Health officer and clerk, Dr. J. C. Cadwallader.

1. \$3,000.
2. \$150.
3. Health officer and clerk, \$300 per year; sanitary policeman, \$120 per year.
4. One.
5. Yes.
6. Ten.
7. None.
8. Yes.
9. Twenty-five.
10. All.

11. Garbage is hauled away twice per week during the summer months and dumped in a suitable place, where it is covered up with earth.

12. Yes.
13. No.

Cases of infectious diseases reported: Smallpox, 10; diphtheria, 16; membranous croup, 2; scarlet fever, 28; typhoid fever, 16; whooping cough, 35; measles, 53. Total number of infectious diseases, 160.

PAINESVILLE, LAKE COUNTY.

Estimated population, 5,024.

Person making report, S. A. Haskell, clerk and health officer.

Health officer and clerk, S. A. Haskell.

1. \$376.26.
2. None.
3. Health officer, \$10 per month; clerk \$5 per month; sanitary policeman, \$2 per day.
4. One.
5. No; only 30 days for 1902.
6. Six.
7. None.
8. Death record is kept correctly; the others as well as possible.
9. Twenty-seven.
10. Twenty-five.
11. No regular system. The garbage when taken care of is taken to a public dumping ground.
12. No.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 9; typhoid fever, 4; whooping cough, 1; measles, 1; other infectious diseases, 5. Total number of infectious diseases, 21.

PIQUA, MIAMI COUNTY.

Estimated population, 13,000.

Person making report, Dr. F. E. Kitzmiller, health officer.

Health officer and secretary, Dr. F. E. Kitzmiller.

1. \$800.
2. None.
3. Health officer, \$40 per month; sanitary policeman, \$25 per month.
4. One.
5. Yes.
6. Monthly.
7. None.
8. Yes.
9. 200.
10. All.
11. Garbage removed by farmers and used for feed.
12. Yes; health officer.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever,

2; typhoid fever, 50; whooping cough, 300; measles, 200. Total number of infectious diseases, 554.

PORTSMOUTH, SCIOTO COUNTY.

Estimated population, 20,000.

Person making report, John W. Berndt, clerk.

Health officer, Dr. W. W. Smith.

Clerk, John W. Berndt.

1. \$4,300.23.
2. \$2,800.
3. Health officer \$600; clerk, \$150; sanitary policeman, \$600.
4. One regularly.
5. Yes.
6. Twenty-three.
7. None.
8. Yes, except record of births.
9. 351.
10. 327.
11. None; the city council has charge of the removal of garbage.
12. Yes.
13. Yes.

Cases of infectious diseases reported: Smallpox, 134; diphtheria, 6; scarlet fever, 105; typhoid fever, not reported; whooping cough, not reported; measles, not reported; other infectious diseases, not reported. Total number of infectious diseases, 245.

ST. MARYS, AUGLAIZE COUNTY.

Estimated population, 6,000.

Person making report, B. E. Thomas, M. D., health officer.

Health officer and clerk, Dr. B. E. Thomas.

1. \$1,007.33.
2. \$900.
3. Sanitary policeman, \$75.
4. One.
5. Yes.
6. Eight.
7. None.

8. Record of deaths only.

9. 211.
10. All.
11. Have none.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 4; typhoid fever, 6; whooping cough, 93; measles, 37. Total number of infectious diseases, 140.

SALEM, COLUMBIANA COUNTY.

Estimated population, 8,000.

Person making report, Dr. E. J. Schwartz, health officer.

Health officer and clerk, Dr. E. J. Schwartz.

1. \$758.29.
2. None.
3. Health officer, \$175; clerk, \$25; sanitary policeman, \$480.
4. One.
5. Yes.
6. Thirteen.
8. Yes.
9. About 900.
10. All except a few now pending.
11. We have no system whatever.
12. Yes.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 2; typhoid fever, 20; measles, epidemic, many not reported, 10; chicken pox, 1. Total number of infectious diseases, 36.

SANDUSKY, ERIE COUNTY.

Estimated population, 22,000.

Person making report, W. H. Busch, M. D., health officer.

Health officer, W. H. Busch, M. D. Clerk, C. B. Winters.

1. \$2,627.50.
2. \$900.
3. Health officer, \$50 per month; clerk \$5 per month; sanitary policeman, \$40.00 per month.

4. Three.
5. One during the whole year; two during two months in the spring.
6. Twenty-one meetings.
8. Yes.
9. Seventy-five.
10. Seventy-five.
11. None; expect to get a garbage plant this spring.
12. No.
13. Yes.

Cases of infectious diseases reported: Smallpox, 12; diphtheria, 8; scarlet fever, 9; typhoid fever, 24; measles, 245. Total number of infectious diseases, 298.

SIDNEY, SHELBY COUNTY.

Estimated population, 6,000.

Person making report, William C. Wyman, health officer.

Health officer and clerk, William C. Wyman.

1. \$428.44.
2. \$120; goods burned and disinfected.
3. Health officer, \$100; clerk, \$25, \$19 on rent of office; sanitary policeman, \$67.
4. One, and for a few days only an assistant.
5. Only one.
6. Eight in regular session. The health officer and sanitary officer are always at the command of the board, and attend to all orders forthwith.
7. Only one prosecution was brought before the mayor, against a party for emptying the contents of a privy vault into the river. The mayor permitted the party to waive examination and bound him over to the grand jury; contrary to section 2121.
8. Yes; except typhoid fever.
9. Eighty-five vaults (so called), and four dead animals.
10. Eighty-nine.

11. A poor system. We have a garbage dump; every dray, or man who

has an old horse and cart, dumps any place except the place provided, which keeps me on the watch all the time trying to so arrange this part of the service in accordance with the orders of the board; yet we expect to change this soon and let it by contract. Dead animals are taken by a fertilizer company and give us no trouble.

12. Yes; for milk and meat.

13. Yes; 50 cents semi-annually; not all venders have, as yet, taken out the permit.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 2; membranous croup, 1; scarlet fever, 1; typhoid fever, not all reported, 3; measles, 24; chicken pox, 1. Total number of infectious diseases, 34.

SPRINGFIELD, CLARK COUNTY.

Estimated population, 40,000.

Person making report, Dr. Henry H. Seys, health officer.

Health officer, Dr. Henry H. Seys.

1. \$11,211.92.
 2. \$5,415.79.
 3. Health officer, \$400; sanitary policeman, \$780.
 4. Two.
 5. Yes.
 6. Fifty-two.
 7. No suits brought.
 8. Yes.
 9. 191.
 10. 191.
 11. By contract, hauled in wagons out of city; four wagons on duty for ten months; two wagons balance of year; system bad and inefficient.
 12. No.
 13. No.
- Cases of infectious diseases reported: Smallpox, 92; diphtheria, 12; membranous croup, 5; scarlet fever, 57; typhoid fever, 20; whooping cough, 3; measles, 828. Total number of infectious diseases, 1,017.

STEUBENVILLE, JEFFERSON COUNTY.

Estimated population, 20,000.

Person making report, G. G. Gaston, secretary.

Health officer, John Welch.

Clerk, G. G. Gaston.

1. \$8,631.66. This does not include health officer's salary.

2. All the above on smallpox.

3. Health officer, \$2 per day; clerk \$100 per year.

4. Health officer acts as sanitary police.

6. Twelve regular and twelve special.

7. Two suits for violation of quarantine. Five suits for violation of sanitary laws.

8. No.

9. 484.

10. 484.

11. We have no special system. We have gotten along so far very well, but will have to adopt some plan.

12. They have not.

13. No.

Cases of infectious diseases reported: Smallpox, 57; diphtheria, 61; scarlet fever, 22; measles, 22; other infectious diseases, 33. Total number of infectious diseases, 195.

TIFFIN, SENECA COUNTY.

Estimated population, 12,000.

Person making report, Dr. A. C. Schwartz, health officer.

Health officer, Dr. A. C. Schwartz.

Clerk, Benj. Spring.

\$2,456.98.

2. About \$4.

3. Health officer, \$300; clerk, \$120; sanitary policeman, \$600.

4. One.

5. Yes.

6. Fifteen.

8. Yes.

9. Fifty-nine.

10. All.

11. We have a contractor who gathers all garbage and hauls it into the country, where he feeds it to hogs. We pay him \$60 per month per team. He has one team on the year around and two teams during the five summer months.

12. Yes; at a salary of \$300 per year.

13. Yes.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 48; scarlet fever, 7; typhoid fever, 41; whooping cough, 7; measles, 2. Total number of infectious diseases, 107.

TOLEDO, LUCAS COUNTY.

Estimated population, 150,000.

Person making report, Dr. W. W. Brand, health officer.

Health officer, Dr. W. W. Brand.

Clerk, W. M. Currie.

1. \$42,653.45.

2. \$27,415.64—\$4,250 of pay roll; \$5,635, repairs of buildings and old ones acquired, and part payments account one under construction; \$3,000, for additional hospital grounds; \$1,832, for furniture, fixtures and ambulance; \$988.00 for clothing; \$5,518.90 for provisions for hospital and quarantine; \$7,369.86 general hospital expense, including special guards, burying, medicine, nurses, special inspectors for smallpox and various smallpox expenses.

3. Health officer, \$1,800 per year; clerk, \$840 per year; sanitary policemen, \$660, \$720 and \$800, according to length of service.

4. Fifteen and one sanitary sergeant at \$840.

5. Yes.

6. Twenty-four.

7. Ten cases for violating milk ordinance and held awaiting decision in supreme court on another similar case. Two selling adulterated milk; one case

marked off docket and other not prosecuted. One widow violating diphtheria quarantine by sending children out of house; got a new husband and was discharged. One interfering with small-pox fumigation; fined \$50 and costs and thirty days in work house. One arrested employer and employe for unlawfully handling and skinning dead animals; employer fined \$10.21.

8. Yes.

9. No track kept of this.

10. 11,015.

11. Collected by a contractor; contract through council, and garbage disposed of in country.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Smallpox, 139; diphtheria and membranous croup, 333; scarlet fever, 115; typhoid fever, 86; whooping cough, 3; measles, 1,090; tuberculosis, 4. Total number of infectious diseases, 1,770.

TROY, MIAMI COUNTY.

Estimated population, 6,000.

Person making report, Dr. G. E. McCullough, health officer.

Health officer, Dr. G. E. McCullough. Clerk, Ralph Gibson.

1. \$590.

2. None.

3. Health officer, \$100 per year; clerk, \$50; sanitary policeman, \$50 per year.

4. One.

5. Yes.

6. Twelve.

7. One suit with fine imposed for unlicensed cleaning of sink; result, riddance to community, by offender's taking leave to avoid payment of fine. One suit for dumping refuse in city limits; result, fine imposed and collected.

8. No record kept of births and deaths; record is kept of infectious and contagious diseases.

9. Seventy two.

10. Seventy.

11. During months from May 1st to November 1st, two sanitary tanks (metal) are in service daily by paid employes for collection (systematic) of garbage. Collected garbage is hauled beyond corporation limits and disposed of to private parties for swill feeding or fertilizing purposes; during balance of year no provision for collection of garbage is offered by city. Private collectors keep garbage removed tolerably well.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 3; typhoid fever, 8; whooping cough, 1; measles, 44. Total number of infectious diseases, 57.

URBANA, CHAMPAIGN COUNTY.

Person making report, C. C. Craig, health officer.

Health officer and clerk, Dr. C. C. Craig.

1. \$500.

2. \$100.

3. Health officer, \$150 per year; sanitary policeman, \$40 per month.

4. One.

5. Yes.

6. Twenty-five.

7. None.

8. Yes.

9. Seventy-five.

10. All.

11. Sealed wagons, disposed of by sealed tanks.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 6; diphtheria, 1; scarlet fever, 2; typhoid fever, 3; measles, 4; other infectious diseases, 7. Total number of infectious diseases, 23.

VAN WERT, VAN WERT COUNTY.

Estimated population, 6,422.

Person making report, Dr. C. G. Church, health officer.

Health officer, Dr. C. G. Church.

Clerk, C. F. Manship.

1. \$554.20.

2. Approximately \$60.

3. Health officer, \$100; clerk, \$25; sanitary policeman, \$96.

4. One.

5. Yes.

6. Ten.

7. Suit was brought against three haulers of night soil for not having barrels according to the specifications of the board of health; they were fined \$5 and costs. Suit was brought against a man for leaving dead horse not buried at city dump grounds; fined \$3 and costs.

8. Board keeps a record of deaths and contagious diseases.

9. Twenty-three.

10. Twenty.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 1; scarlet fever, 31; typhoid fever, 6; measles, 37. Total number of infectious diseases, 77.

WARREN, TRUMBULL COUNTY.

Estimated population, 10,500.

Person making report, Dr. D. E. Hoover, health officer.

Health officer, Dr. D. E. Hoover.

Clerk, A. F. Jamison.

1. \$2,600.

2. \$1,500.

3. Health officer, \$5 per month; clerk, \$15 per month; sanitary policeman, \$65 per month.

4. One.

5. Yes.

6. Thirty-two.

7. Twenty-five for violating chicken ordinance. Three for committing nuisances. Two for removing body. Prosecution successful in all cases and fines assessed.

8. Yes.

9. Twenty-seven.

10. All.

11. Collected in cans and disposed of by man under contract. Individuals bear expense.

12. Sanitary policeman inspects.

13. Yes.

Cases of infectious diseases reported: Smallpox, 11; diphtheria, 4; membranous croup, 1; scarlet fever, 31; typhoid fever, 18; whooping cough, no record; measles, 79; other infectious diseases, 8. Total number of infectious diseases, 152.

WASHINGTON C. H., FAYETTE COUNTY.

Estimated population, 8,000.

Person making report, J. M. Edwards, health officer.

Health officer, J. M. Edwards.

Clerk, Frank M. Bateman.

1. \$115.83.

2. Nothing.

3. Health officer, \$100; clerk, nothing; sanitary policeman, nothing.

4. Five.

5. Yes.

6. Five.

7. No. suit.

8. Yes.

9. Seventy-five.

10. Seventy-five.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 13; scarlet fever, 8; typhoid fever, 5; measles, 74. Total number of infectious diseases, 100.

WELLSVILLE, COLUMBIANA
COUNTY.

Estimated population, 6,146.

Person making report, E. C. Taylor,
secretary.

Health officer, Dr. M. C. Tarr.

Clerk, E. C. Taylor.

1. \$1,389.89.

2. \$798.49.

3. Health officer, \$45 per month;
clerk, \$6.25 per month.

4. Sufficient during epidemics.

5. No.

6. Sixteen.

7. None.

8. Yes.

9. 150.

10. All.

11. The city council has been requested to purchase a suitable tract of ground outside of the city limits for the burial of garbage. At present garbage is hauled out of city and destroyed by burial.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 6; membranous croup, 4; scarlet fever, 20; typhoid fever, 35; measles, 80. Total number of infectious diseases, 147.

XENIA, GREENE COUNTY.

Estimated population, 10,000.

Person making report, Dr. H. R. McClellan, health officer.

Health officer, Dr. H. R. McClellan.

Clerk, J. H. Howard.

1. \$2,691.80.

2. \$2,362.17.

3. Health officer, \$250; clerk, \$120;
sanitary policeman, by the hour.

4. One.

5. Yes.

6. The first and third Mondays of each month from May 1 to November 1, and the second Monday of each month from November 1 to May 1.

7. No prosecutions.

8. No; not of births, but of deaths.

9. About sixty.

10. All.

11. We have no system fully carried out.

12. No.

13. No.

Cases of infectious diseases reported; Smallpox, 32; diphtheria, 5; scarlet fever, 12; typhoid fever, 15; whooping cough, not reported; measles, not reported.

YOUNGSTOWN, MAHONING
COUNTY.

Estimated population, 44,885.

Person making report, H. E. Welch,
M. D., health officer.

Health officer, H. E. Welch, M. D.

Secretary, Clate A. Smith.

1. As near as can be secured at this time, \$19,578.92.

2. \$10,500.

3. Health officer, \$75 per month;
clerk and chemist, \$90 per month; sanitary policeman, \$75 per month.

4. Four.

5. They are employed all through the year.

6. There were fourteen meetings held.

7. One suit was brought against one of the city firemen for concealing in his house a case of smallpox; the mayor fined him \$25 and costs.

8. The board keeps permanent record of all of the above.

9. 1,951.

10. 1,835.

11. We have no system for the collection of garbage. It is all done by private parties, who work and charge as they see fit. An ordinance to regulate this question has met defeat at the hands of three different councils. The garbage is disposed by incineration; we have a Dixon garbage furnace.

12. We have an inspector of foods, who, together with the chemist of board, looks after this question.

13. The board does not require a permit.

Cases of infectious diseases reported: Smallpox, 67; diphtheria, 78; scarlet fever, 69; typhoid fever, 286; whooping cough, 71; measles, 660. Total number of infectious diseases, 1,231.

ZANESVILLE, MUSKINGUM COUNTY.

Estimated population, 28,000.

Person making report, Dr. C. P. Sellers, health officer.

• Health officer, Dr. C. P. Sellers.

1. \$3,921.73.

2. \$752.69.

3. Health officer, \$600; sanitary policeman, \$660.

4. One regular and extras when needed.

5. One; yes.

6. Fourteen.

7. For violation of quarantine laws.

8. Yes; except births.

10. 2,161 notices served.

11. No; hauled about one mile out of city.

12. Yes; sanitary policeman.

13. Yes.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 233; scarlet fever, 15. Total number of infectious diseases, 253.

VILLAGES.

ADA, HARDIN COUNTY.

Estimated population, 3,100.

Person making report, W. H. Morrow, health officer.

Health officer and clerk, W. H. Morrow.

1. \$45.50.

2. None.

3. Health officer, \$30; clerk, \$9.

6. Six.

8. Yes, except births.

9. 225.

10. 225.

11. Two garbage wagons to collect and charge to parties on whose premises found. We own a garbage ground.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 21; membranous croup, 2; scarlet fever, 3; typhoid fever, 10; measles, 4. Total number of infectious diseases, 40.

ADDYSTON, HAMILTON COUNTY.

Estimated population, 1,513.

Person making report, Charles Kelly, health officer.

Health officer, Charles Kelly.

Clerk, James Clift.

1. \$200.

2. None.

3. Health officer, \$120; clerk, \$36.

4. None.

6. Twelve.

7. No suit brought.

8. Deaths and contagious diseases; not births.

9. Twenty.

10. Twenty.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 8; typhoid fever, 8; whooping cough, 75. Total number of infectious diseases, 91.

ANNA, SHELBY COUNTY.

Estimated population, 600.
 Person making report, Dr. C. W. B.
 Harbour, ex-health officer.
 Health officer, none.
 Clerk, none.
 7. None.
 8. No.
 9. None.
 10. None.
 11. None.
 12. No.
 13. No.
 Cases of infectious diseases reported: None.

5. No.
 6. None.
 7. None.
 8. No.
 9. One.
 10. One.
 11. No system. It is mostly hauled or carried away and dumped into some low place.
 12. No.
 13. No.
 Cases of infectious diseases reported: Diphtheria, 5; typhoid fever, 2. Total number of infectious diseases, 7.

ANSONIA, DARKE COUNTY.

Estimated population, 767.
 Person making report, Dr. H. A. Snorf, health officer.
 Health officer, Dr. H. A. Snorf.
 Clerk, William Schmidt.
 1. \$30.
 2. None.
 3. Health officer, \$25.
 4. One.
 5. Yes.
 6. None.
 7. None.
 8. Have just commenced.
 9. About six or eight.
 10. All.
 11. Hauled to country.
 12. No.
 13. No.

ARCADIA, HANCOCK COUNTY.

Estimated population, 500.
 Person making report, W. W. Moore, health officer.
 Health officer, W. W. Moore.
 1. None.
 2. None.
 3. Health officer, 15 cents per hour when on duty.
 4. None.
 5. No.
 7. No suits.
 8. Yes.
 9. None.
 11. Do not allow it to collect within the village.
 12. No dairy delivery.

APPLE CREEK, WAYNE COUNTY.

Estimated population, 500.
 Person making report, W. H. Winkler, health officer.
 Health officer, W. H. Winkler.
 Clerk, J. W. Crummel.
 1. Nothing.
 2. Nothing.
 3. Health officer, nothing; clerk, nothing; sanitary policeman, nothing.
 4. None last year.

ARCANUM, DARKE COUNTY.

Estimated population, 1,250.
 Person making report, Dr. P. W. Byers, secretary.
 Health officer, J. A. Wallace.
 Clerk, Dr. P. W. Byers.
 1. \$35.80.
 2. None.
 3. Health officer, \$25, and 10 cents serving a notice.
 4. None.
 6. Six.
 7. None.

(See questions on page 273.)

8. Not of births, but of deaths, infectious and contagious diseases.

9. 109.

10. 100.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup 1; scarlet fever, 1; measles, 42. Total number of infectious diseases, 44.

ARCHBOLD, FULTON COUNTY.

Estimated population, 1,000.

Person making report, August Ruhley, health officer.

Health officer and clerk, August Ruhley.

1. Nothing but salary of health officer and supplies for health officer.

3. Health officer and clerk, \$30.

4. None.

6. Eight.

8. No.

11. We have no system. The board of health has several times requested the council to lease or buy a place to dispose of our village garbage, but council claims they cannot find a place.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 6. Total number of infectious diseases, 6.

ARLINGTON, HANCOCK COUNTY.

Estimated population, 1,000.

Person making report, Solomon Bates, health officer.

Health officer, Solomon Bates.

Clerk, W. F. Lehr.

1. \$6.

3. Health officer, \$16.

4. None.

6. Fifteen.

8. Yes.

9. Twelve.

10. Twelve.

11. Each property owner removes that accumulating on his own property.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 1; whooping cough, 2. Total number of infectious diseases, 3.

ASHLAND, ASHLAND COUNTY.

Estimated population, 5,000.

Persons making report, F. V. Dotterweich, M. D., and William F. Billheimer, health officer and clerk.

Health officer, Dr. F. V. Dotterweich.

Clerk, William Billheimer.

1. \$275.00.

2. None.

3. Health officer, \$100; clerk, \$25; sanitary policeman, \$100.

4. One; he is also marshal.

5. Yes.

6. Six.

8. Not in the past, but arrangements have been made by the present board.

9. Thirty.

10. Thirty.

11. Most garbage is fed to hogs.

12. No.

13. No.

ASHLEY, DELAWARE COUNTY.

Estimated population, 900.

Person making report, Dr. H. N. Coomer, health officer.

Health officer, Dr. H. N. Coomer.

1. \$5.10.

2. 35 cents.

3. Health officer, \$50.

4. None.

8. Yes, of all that are reported.

9. None.

10. A few were abated through a general order published in our local paper.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 7; typhoid fever, 2; measles, 48. Total number of infectious diseases, 57.

ATHENS, ATHENS COUNTY.

Persons making report, Dr. J. M. Higgins and W. A. Hibbard, health officer and secretary.

Health officer, Dr. J. M. Higgins.

Clerk, W. A. Hibbard.

1. \$10.

2. \$10

3. Health officer, \$100; clerk, \$25; sanitary policeman, \$120.

4. Oe.

5. Yes.

6. Twelve.

7. None.

8. Yes, except births.

9. Forty-eight.

10. Forty-eight.

11. We have no system and no place to dump garbage.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 3; scarlet fever, 4; typhoid fever, 8; other infectious diseases, 2. Total number of infectious diseases, 19.

ATTICA, SENECA COUNTY.

Estimated population, 800.

Person making report, Dr. C. A. Force, health officer.

Health officer, Dr. C. A. Force.

Clerk, William F. Uhle.

1. \$3.00.

2. None.

3. Health officer, \$10.

4. Have one that acts or makes the duties of sanitary police a part of his street commissioner work.

5. Yes.

6. Three or four.

8. No.

9. Five or six.

10. All.

11. Every person takes care of his own.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 3. Total number of infectious diseases, 3.

AVON, LORAIN COUNTY.

Estimated population, 250.

Person making report, Dr. John R. Pipes, health officer.

Health officer, Dr. John R. Pipes.

Clerk, James Brooks.

1. About \$20.

2. About \$15.

3. Health officer, nothing; clerk, nothing.

4. None.

6. Three.

7. None.

8. No.

9. One.

10. One.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; membranous croup, 1. Total number of infectious diseases, 2.

BAINBRIDGE, ROSS COUNTY.

Estimated population, 1,000.

Person making report, Dr. R. H. McKee, health officer.

Health officer, R. H. McKee, M. D.

1. \$37.85.

2. \$30.

4. None, except in emergency.

5. No.

6. Three.

7. No prosecution.
 8. No.
 9. Five.
 10. Five.
 11. None.
 12. No.
 13. No.
-

BAIRDSTOWN, WOOD COUNTY.

Estimated population, 300.

Person making report, R. H. Quick,
health officer.

Health officer, R. H. Quick.

1. \$3.00.
2. None.
3. Health officer, none.
4. None.
8. Yes.
9. Three.
10. Three.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 8; other infectious diseases, 2. Total number of infectious diseases, 11.

BARBERTON, SUMMIT COUNTY.

Estimated population, 7,000.

Person making report, Dr. A. H. Stall, health officer.

Health officer, Dr. A. H. Stall.

Clerk, Jacob Chisnell.

1. \$1,114.13, including salaries, and \$61.89, pending payment.
2. \$335.07, and \$61.89, pending payment.
3. Health officer, \$150; clerk, \$50; sanitary policeman, \$480.
4. One regular and special as needed, who receives \$2 per day when on duty.
5. The regular is.
6. Seventeen regular meetings and six special meetings.
7. Two cases have been brought be-

fore the mayor by action of board of health. One on account of owner not emptying privy vault and other as to disposal of garbage. Both were settled satisfactory to the health board.

8. They do.
9. I can give several, but all are satisfactory.
10. All that were reported.
11. Garbage is collected in barrels and hauled to city dump ground and at certain times burned.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 4; scarlet fever, 11; typhoid fever, 18; whooping cough, do not quarantine; measles, 9. Total number of infectious diseases, 43.

BARNESVILLE, BELMONT COUNTY

Estimated population, 3,800.

Person making report, W. A. Talbott,
health officer.

Health officer, W. A. Talbott.

Clerk, James Cassels.

1. \$125.
2. None.
3. Health officer, \$90; clerk, \$15.
4. None.
6. Six.
8. No.
10. All that were reported.
11. At garbage dump.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 12. Total number of infectious diseases, 13.

BEALLSVILLE, MONROE COUNTY.

Estimated population, 800.

Person making report, G. T. Hendershot, health officer.

Health officer, G. T. Hendershot.

Clerk A. J. Eddy.

1. \$6.50.
2. \$6.50.
3. Paid fees.
6. Six.
8. Have not, but expect to the coming year.

BEAVER, PIKE COUNTY.

- Estimated population, 300.
 Person making report, V. E. White, health officer.
 Health officer, V. E. White.
1. \$15.
 2. None.
 3. Health officer, \$10; clerk, \$5.
 4. None.
 6. Six.
 8. Yes.
 12. No.
 13. No.

BEAVER DAM, ALLEN COUNTY.

- Person making report, Frank Hutter, clerk.
 Health officer, Dr. Haines.
 Clerk, Frank Hutter.
2. None.
 3. Health officer, no fixed salary.
 4. One.
 5. Yes.
 6. Five.
 7. None.
 8. Yes, except births.
 9. None.
 10. None.
 11. Is collected by street commissioner and buried.
 12. No.
 13. No.

Cases of infectious diseases reported: Scarlet fever, 26; whooping cough, 2. Total number of infectious diseases, 28.

BEDFORD, CUYAHOGA COUNTY.

Estimated population, 1,800.

Person making report, William F. Golling, secretary.

Health officer, C. M. Kerslake.
 Clerk, William F. Golling.

1. \$132.65.
2. None.
3. Health officer, \$95; clerk, nothing.
4. None.
6. Eight.
7. None brought.
8. Everything but births.
9. Twenty-five.
10. Twenty-five.
11. We have no system.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 1; typhoid fever, 1; whooping cough, 15; measles, 9. Total number of infectious diseases, 29.

BELLE CENTER, LOGAN COUNTY.

- Estimated population, 1,200.
 Person making report, J. T. Ewing, health officer.
 Health officer, J. T. Ewing.
 Clerk, H. A. Sickles.
1. Not any.
 2. Nothing.
 3. Health officer, \$25; clerk, \$12.
 4. Not any, health officer doing such work.
 6. Two.
 7. None brought.
 8. No.
 11. Have none.
 12. No.
 13. No.

BELLVILLE, RICHLAND COUNTY.

- Estimated population, 1,039.
 Person making report, N. R. Eastman, health officer.
 Health officer, Dr. N. R. Eastman.

Clerk, M. Barrott.

1. About \$1,000.
2. All.
3. Health officer, \$36.
4. None.
6. Five or six.
7. None.
8. No.
9. Don't know.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 4; typhoid fever, Total number of infectious diseases, 5.

BELLEVUE, HURON COUNTY.

Estimated population, 4,500.

Person making report, E. D. Smith health officer.

Health officer, E. D. Smith.

Clerk, Dr. I. I. Good.

1. \$557.51.
2. \$472.41.
3. Health officer, \$50; clerk, \$25.
4. Health officer acts as sanitary police.
6. Eleven.
8. Not of births and deaths, but do of contagious diseases.
11. It is collected and taken to dumping ground about one mile from town.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 4; diphtheria, 1; scarlet fever, 3; typhoid fever, 1; measles, 19. Total number of infectious diseases, 28.

BELMONT, BELMONT COUNTY.

Estimated population, 500.

Person making report, David S. Pierce, health officer.

Health officer, David S. Pierce.

Clerk, A. M. King.

1. \$10.
2. None.
3. Health officer, \$5; clerk, \$5.
4. None.
6. Two.
9. Six.
10. Six.
11. None.
12. No.
13. No.

BELPRE, WASHINGTON COUNTY.

Estimated population, 900.

Person making report, W. E. Cox, Clerk.

Health officer, Joseph Sharp.

Clerk, W. E. Cox.

1. About \$15.
2. None.
3. Health officer, \$1.50 per day for time employed; clerk, none.
4. Health officer acts as sanitary police.
5. Yes.
6. Twelve.
7. None.
8. Yes.
9. Fifty-six.
10. Fifty-six.
11. Hauled out of town.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 1; typhoid fever, 3. Total number of infectious diseases, 4.

BENTON RIDGE, HANCOCK COUNTY.

Estimated population, 400.

Person making report, R. D. Whisler, M. D., health officer.

Health officer, Dr. R. D. Whisler.

Clerk, E. M. Jones.

1. None.
2. None.
3. No salary.

4. None.
6. None.
8. No.
9. None.
10. None.
11. Left to the individual.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 5. Total number of infectious diseases, 5.

BERLIN HEIGHTS, ERIE COUNTY.

- Estimated population, 750.
 Person making report, Dr. G. W. Hine, health officer.
 Health officer, G. W. Hine, M. D.
 Clerk, E. G. Rhoads.
1. \$104.50.
 2. \$104.50.
 3. Health officer, \$1.50 per day when employed; clerk, \$5.00.
 4. None regular.
 6. Ten.
 7. One arrest made for violating quarantine orders; fined \$1 and costs.
 8. No.
 9. None.
 11. None.
 12. No.
 13. No.

BETHEL, CLERMONT COUNTY.

- Estimated population, 1,000.
 Person making report, W. E. Thompson, health officer.
 Health officer, W. E. Thompson.
 Clerk, A. T. Floyd.
3. Health officer, \$25; clerk, \$20.
 9. Two.
 10. Two.
 11. Have no system; each family disposes of its own garbage.
 12. No.
 13. No.
- Cases of infectious diseases re-

ported: Smallpox, 4; measles, 1. Total number of infectious diseases, 5.

BEVERLY, WASHINGTON COUNTY.

- Estimated population, 712.
 Person making report, J. C. Preston, mayor.
 Health officer, I. J. Pearce.
 Clerk, Samuel Bailey.
1. None; what bills were contracted were paid by council.
 2. Nothing.
 3. Health officer, \$10.
 4. None.
 6. Twelve.
 7. None.
 8. No.
 9. Three.
 10. No.
 11. None.
 12. No.
 13. No.

BLAKESLEE, WILLIAMS COUNTY.

- Estimated population, 239.
 Person making reporting, Jay A. Nichols, mayor.
- We have no board of health, but turn over everything to health committee of council.

BLANCHESTER, CLINTON COUNTY

- Estimated population, 2,000.
 Person making report, R. M. Rilea, health officer and clerk.
 Health officer and clerk, R. M. Rilea.
1. Salaries, \$75.
 2. None.
 3. Health officer and clerk, \$60.
 4. None.
 6. Six.
 7. None.
 8. No. I have filed the certificates and applications for permits since my appointment.

9. A great many complaints were made to the health officer.

10. All were abated by persuasion or threats without reference to the board.

11. By team and wagon kept by village.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 3; whooping cough, none reported; however, it prevailed. Total number of infectious diseases, 3.

BLOOMDALE, WOOD COUNTY.

Estimated population, 900.

Health officer, Elmer Wineland.

1. Nothing.

3. Nothing.

6. None.

8. Yes.

BLOOMFIELD, JEFFERSON COUNTY.

Estimated population, 200.

Person making report, E. M. Crawford, mayor.

Nothing to report; no organization.

BLOOMINGBURG, FAYETTE COUNTY.

Estimated population, 600.

Person making report, H. A. Pinkerton, health officer.

Health officer, H. A. Pinkerton.

1. \$45.20.

2. \$4.99.

3. Health officer, \$35.

4. None.

6. Two.

8. Yes.

9. Three.

10. Three.

11. Garbage is carted out of corporation and deposited on ground pro-

cured for that purpose.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 5; measles, 17; other infectious diseases, 1. Total number of infectious diseases, 23.

BLOOMVILLE, SENECA COUNTY.

Estimated population, 1,000.

Person making report, T. C. Loose, M. D., health officer.

Health officer, T. C. Loose, M. D.

Clerk, Schuyler Hossler.

1. None except for salaries.

2. None.

3. Health officer, \$25; clerk, \$5; sanitary policeman, \$15.

4. One.

5. Yes.

6. Two.

7. No prosecutions.

8. Yes.

9. Forty-three.

10. Forty-three.

11. Garbage and night soil are carted outside of the corporation and used as fertilizer on farm land.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 4; chicken pox, 15. Total number of infectious diseases, 19.

BLUFFTON, ALLEN COUNTY.

Estimated population, 2,000.

Person making report, Dr. J. J. Sutter, health officer.

Health officer, Dr. John J. Sutter.

Clerk, Harry Fisher.

1. \$103.05.

2. None.

3. Health officer, \$25; clerk, \$10; sanitary policeman, \$20.

4. One.

5. Yes.

6. Seven.
8. Keep a record of deaths and infectious and contagious diseases only.
9. Eleven.
10. Eleven.
11. Each person sees that his garbage is removed. A place outside of corporation was purchased for this dumping.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 7; typhoid fever, 6; whooping cough, 5. Total number of infectious diseases, 19.

3. Sanitary policeman, \$2 per day.
4. One.
5. During prevalence of epidemic.
6. Twelve.
8. No.
9. None.
10. None.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 69; diphtheria, 1; typhoid fever, 6; measles, 15. Total number of infectious diseases, 91.

BOND HILL, HAMILTON COUNTY.

Estimated population, 1,100.

Person making report, D. E. Murphy, health officer.

Health officer, D. E. Murphy.

Clerk, Dr. J. B. Kersey.

1. \$60.
2. None.
3. Health officer, \$40; clerk, \$20.
6. Twelve.
8. Yes.
9. Forty-eight.
10. Forty-eight.
11. Village man collects garbage, delivering same to farmers free of charge.

12. Done by health officer.

13. Yes.

Cases of infectious diseases reported: Smallpox, 1; typhoid fever, 2. Total number of infectious diseases, 3.

BOWERSVILLE, GREENE COUNTY.

Estimated population, 600.

Person making report, L. S. O'Day, health officer.

Health officer, L. S. O'Day.

Clerk, E. S. Story.

1. \$572.
2. \$417.59.
3. Health officer, \$15; clerk, \$15.
4. None.
6. Nine.
7. None.
8. Yes.
9. Sixteen.
10. All.
11. Removal and burial.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; varioloid, 2. Total number of infectious diseases, 3.

BOURNEVILLE, ROSS COUNTY.

Estimated population, 200.

Person making report, J. A. Van Winkle, M. D., health officer.

Health officer, Dr. J. A. Van Winkle.

Clerk, E. C. Rinehart.

1. \$393.65.
2. \$393.65.

BRADFORD, DARKE AND MIAMI COUNTIES.

Estimated population, 1,400.

Person making report, A. F. Little, secretary.

Health officer, John Tinkler.

Clerk, A. F. Little.

1. About \$80.
2. None.

3. Health officer, \$60 per year; clerk, \$40.

4. Health officer acts as sanitary police.

6. Two.

8. Yes.

9. Several.

10. All.

11. Have regular man who collects each week and dumps on farm land outside corporation.

12. Yes.

13. Yes.

Cases of infectious diseases reported: Membranous croup, 1; whooping cough, 4; measles, 10. Total number of infectious diseases, 15.

BRADNER, WOOD COUNTY.

Estimated population, 1,200.

Person making report, O. J. Mitchell, health officer.

Health officer and clerk, O. J. Mitchell.

1. \$97.62.

2. \$33.12.

3. Health officer and clerk, \$40; sanitary policeman, 15 cents per hour.

4. None except when a special is appointed.

5. No.

6. Five.

8. Yes.

11. By a garbage collector and disposed of by him on our dumping ground outside of the village, according to general law.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 81. Total number of infectious diseases, 82.

Health officer, V. Wagner.

Clerk, Walter McConnaughey.

3. Health officer, \$100; clerk, \$10; sanitary policeman, \$50.

4. One.

5. Yes.

6. One.

8. Yes, except births.

9. No record of them.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 18; membranous croup, 6; scarlet fever, 8. Total number of infectious diseases, 33.

BROOKVILLE, MONTGOMERY COUNTY.

Estimated population, 1,000.

Person making report, Dr. H. W. McMillen, health officer.

Health officer and clerk, Dr. H. W. McMillen.

1. \$128.82.

2. Not paid yet.

3. Health officer, no salary.

4. One during diphtheria.

5. No.

6. Ten.

8. No.

9. Eleven.

10. Eleven.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 4; diphtheria, 4; typhoid fever, not reported; whooping cough, not reported; measles, not reported. Total number of infectious diseases, 8.

BROOKLYN, CUYAHOGA COUNTY.

Estimated population, 3,500.

Person making report, Julius Renker, health officer.

Health officer, Julius Renker.

BRIDGEPORT, BELMONT COUNTY.

Estimated population, 3,965.

Person making report, Dr. V. Wagner, health officer.

Clerk, George W. Huhn.

1. \$261.50.
2. \$91.50.
3. Health officer, \$100; clerk, \$20.
4. None.
6. Twenty.
7. None.
8. Yes.
9. Twenty.
10. All.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 15; diphtheria, 4; membranous croup, 1; scarlet fever, 6; typhoid fever, 8; whooping cough, 10; measles, 14. Total number of infectious diseases, 58.

BRYAN, WILLIAMS COUNTY.

Estimated population, 3,500.

Person making report, Nicholas Vineyard, health officer.

Health officer and clerk, N. Vineyard.

1. \$188.42.
2. \$60.
3. Health officer, \$120.
4. One in cases of emergency.
5. No.
6. Six.
8. Yes.
9. Not any; only dogs and cats a few.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, in nine families, 22; scarlet fever, in 11 families, 15; typhoid fever, 1; whooping cough, quite prevalent, no notice; measles, very mild, no reports. Total number of infectious diseases, 38. Twenty of the smallpox cases occurred latter part of December and now under treatment.

BUCHTEL, ATHENS COUNTY.

Estimated population, 1,500.

Person making report, Dr. H. T. Lee, health officer.

Health officer and clerk, Dr. H. T. Lee.

1. About \$15.
2. None.
3. Health officer and clerk, \$25.
4. None.
6. None.
7. None.
8. Of births and deaths, but not contagious diseases.
9. Two.
10. Two.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 122; whooping cough, 25. Total number of infectious diseases, 147.

BURBANK, WAYNE COUNTY.

Estimated population, 350.

Person making report, A. W. Hoffman, health officer.

Health officer, A. W. Hoffman.

Clerk, J. B. Holloway.

1. None.
3. Health officer, no salary.
4. None.
6. Three.
8. Yes.
9. One.
10. One.
11. Each family looks after its own.
12. No.
13. No.

BURKETTSVILLE, DARKE COUNTY.

Estimated population, 300.

Person making report, S. S. Earhart, mayor.

Health officer, Dr. B. G. Inman.

Clerk, C. Brown.

1. None.
2. None.
3. Health officer, no salary.
4. One.
5. Yes.
6. Six.
8. Yes.
9. Four.
10. Four.
11. Collected in wagons and barrels.

12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 7.

BUTLER, RICHLAND COUNTY.

Estimated population, 700.

Person making report, Dr. E. G. Rummel, health officer.

Health officer, Dr. E. G. Rummel.

Clerk, W. A. Noling.

1. \$58.10, including salaries.

2. None.

3. Health officer, \$20; clerk, \$20.

4. None

6. Fourteen.

8. It does not of births.

9. Fourteen.

10. All of them.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: None.

BYESVILLE, GUERNSEY COUNTY.

Estimated population, 3,000.

Person making report, D. F. Morrow, health officer.

Health officer, D. F. Morrow.

Clerk, William Thompson.

1. About \$8.00.

2. None.

3. Health officer, \$30; clerk, \$5.

8. No. I get them from the doctors.

9. A great many.

10. All.

11. We have two scavengers and 25 acres of land; dispose of it by plowing.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 8. Total number of infectious diseases, 10.

CADIZ, HARRISON COUNTY.

Estimated population, 2,000.

Person making report, Dr. R. P. Rusk, health officer.

Health officer, Dr. R. P. Rusk.

1. \$553.18.

2. \$507.98.

3. Health officer, \$25.

4. None.

8. A permanent record of deaths is kept.

9. None.

10. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 5.

CALDWELL, NOBLE COUNTY.

Estimated population, 920.

Person making report, John Finley, health officer.

Health officer, John Finley.

Clerk, J. E. Harrass.

1. \$35.

2. None.

3. Health officer, \$50.

4. None regularly.

5. Only as occasion requires.

6. Two.

7. No prosecutions were made during last year.

8. No.

9. One.

10. One.

11. Employ scavenger who collects and removes all waste about one mile

to an isolated place, away from any public highway or water course, where everything is dumped.

12. No.

13. No.

CALEDONIA, MARION COUNTY.

Estimated population, 750.

Person making report, Noah Lee, health officer.

Health officer, Noah Lee.

Clerk, J. C. Cochran.

1. \$28.75.

2. None.

3. Health officer, \$25; clerk, 75 cents each meeting.

6. Five.

9. One.

10. One.

11. Bury it. Streets and alleys are kept in good sanitary condition; good sewerage. The removal of night soil is done at the order of health board. Many of the school children were vaccinated during the year, but many were unsuccessful, owing to faulty virus.

13. No; we have no regular milk salesman.

Cases of infectious diseases reported: Diphtheria, 2. Total number of infectious diseases, 2.

CAMDEN, PREBLE COUNTY.

Estimated population. 900.

Person making report, Dr. W. E. Pryor, health officer.

Health officer, Dr. W. E. Pryor.

Clerk, H. C. Crafton.

1. \$45.

2. None.

3. Health officer and clerk, nothing; sanitary policeman, paid by schedule for services rendered.

4. One.

5. Yes.

6. Six.

7. None.

8. As near as possible.

9. Six.

10. Six.

11. Have no particular system. Refuse is dumped along creek at edge of town.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 9. Total number of infectious diseases, 11.

CANAL FULTON, STARK COUNTY.

Estimated population, 1,400.

Person making report, George Becker, health officer.

Health officer, George Becker.

Clerk, Dr. D. K. Jones.

1. \$23.

2. None.

3. Health officer, \$20; clerk, \$3.

6. Four.

7. No prosecutions.

8. No.

9. Five.

10. Five.

11. No system adopted.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2.

CANAL WINCHESTER, FRANKLIN COUNTY.

Estimated population 633.

Person making report, George M. Herbst, clerk board of health.

Health officer, Dr. W. S. Gayman.

Clerk, George M. Herbst.

1. \$31.74, not including salaries.

2. Not any.

3. Health officer, \$30; clerk, \$20; sanitary policeman, \$25.

4. One.

5. Yes.

6. Thirteen.
7. None.
8. No.
9. Eighteen.
10. About all.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 18.

CANNELSVILLE, MUSKINGUM COUNTY.

Estimated population, 300.

Person making report, Dr. D. W. Trout, health officer.

Health officer, Dr. D. W. Trout.

1. None.
2. None.
3. No salaries.
4. None.
6. Three or four.
8. No.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 12.

CAREY, WYANDOT COUNTY.

Estimated population, 1,900.

Person making report, R. C. Van Buren, health officer.

Health officer, John Sockrider.

Clerk, Homer Thrall.

1. \$48.00.
2. None.
3. Health officer, \$60; clerk, \$30; sanitary policeman, \$40.
4. One.
5. Yes.
6. Twenty-eight.
8. Deaths, infectious and contagious only.
9. Ten.
10. Ten.
12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 6; measles, 7. Total number of infectious diseases, 13.

CARROLLTON, CARROLL COUNTY.

Estimated population, 1,300.

Person making report, Dr. A. H. Hise, health officer.

Health officer, Dr. A. H. Hise.

Clerk, William Maffett.

1. About \$10.
2. About \$10 on account of small-pox at Malvern.
3. None named.
4. One.
5. Yes.
6. Two.
8. No.
9. None.
10. None.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 5. Total number of infectious diseases, 5.

CARTHAGE, HAMILTON COUNTY.

Estimated population, 2,900.

Person making report, F. S. Staaf, health officer.

Health officer and clerk, F. S. Staaf.

1. \$435.55.
2. \$279.85.
3. Health officer, clerk and sanitary policeman, \$150.
6. Three.
8. Yes.
9. Nine.
10. Six.
11. Where the garbage is separate from ashes it is hauled to the outskirts of village to parties having hogs; otherwise it is hauled to the out-

skirts to fill low places called dumps; this being done by the council.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 6; diphtheria, 1; scarlet fever, 5; typhoid fever, 9; measles, 1. Total number of infectious diseases, 22.

CATAWABA, CLARK COUNTY.

Estimated population, 220.

Person making report, Dr. J. D. Thomas, health officer.

Health officer, Dr. J. D. Thomas.

Clerk, F. M. Tavenner.

1. \$37.80.

2. None.

3. Health officer, nothing; clerk, 25 cents per meeting.

4. None.

6. Eleven.

7. Suit was brought by the board against the clerk for illegally drawing fees for posting rules of board of health which were not legally posted. The suit was brought in the name of the board of health and was thrown out by the court on the ground that the board of health could not sue or be sued.

8. Yes.

9. Seven.

10. Seven.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1.

CECIL, PAULDING COUNTY.

Estimated population, 350.

Person making report, S. E. Demuth, health officer.

Health officer, S. E. Demuth.

Clerk, C. R. Weaver.

1. \$15.

2. None.

3. Health officer, \$50 a year.

4. None.

6. Three.

8. No.

9. Two.

10. None.

12. No.

13. No.

Cases of infectious diseases reported; diphtheria, 9; typhoid fever, 3; whooping cough, 60. Total number of infectious diseases, 72.

CEDARVILLE, GREENE COUNTY.

Estimated population, 1,186.

Person making report, M. H. Shroads, sanitary police.

Health officer, M. H. Shroads.

Clerk, J. M. Bromagen.

1. \$137.25.

2. \$13 was spent to examine patients; no smallpox.

3. Health officer and sanitary policeman, \$75; clerk, \$18.

4. Health officer acts as sanitary police.

5. Yes.

6. The board meets the first Tuesday of each month.

7. None.

8. Yes.

9. No record.

10. All but one.

11. We have two public dumps, one for garbage and one for night soil; both are outside the corporation limits.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 1; measles, 93; other infectious diseases, 3. Total number of infectious diseases, 97.

CENTERBURG, KNOX COUNTY.

Estimated population, 800.

Person making report, J. C. Coe,
health officer.

Health officer, J. C. Coe.

Clerk, J. Van Horn.

1. \$190.
2. \$155.
3. Health officer, \$25.
4. Health officer acts as sanitary police.
6. Ten.
9. Fifteen.
10. All.
11. Hauled out in the country and plowed under.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; scarlet fever, 1; typhoid fever, 4. Total number of infectious diseases, 6.

CHAGRIN FALLS, CUYAHOGA COUNTY.

Estimated population, 1,600.

Person making report, E. E. Nichols, Clerk.

Health officer, W. J. Clark.

Clerk, E. E. Nichols.

1. \$63.31.
2. None.
3. Health officer, 20 cents per hour; clerk, \$15 per annum.
4. None.
6. Five.
7. None.
8. Of infectious and contagious diseases only.
9. Twenty-eight.
10. All.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever,

4; measles, 25; chicken pox, 5. Total number of infectious diseases, 35.

CHATFIELD, CRAWFORD COUNTY.

Estimated population, 300.

Person making report, J. H. Mollenkop, health officer.

Health officer, J. H. Mollenkop.

1. None but salary, which is not yet paid; bill handed in for \$6.05.
2. None.
3. Health officer, no salary fixed.
4. None.
6. None.
7. None.
8. No.
9. One.
10. One.
11. Each family disposes of its own.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 2; measles, 4. Total number of infectious diseases, 6

CHEVIOT, HAMILTON COUNTY.

Estimated population, 800.

Person making report, George B. Tait, health officer.

Health officer, George B. Tait.

1. None.
2. None.
3. Health officer, \$100 per annum.
4. None.
7. There have been none.
8. Yes.
9. Three.
10. Three.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 1. The health officer has no record except from October 6, 1902. All reports pre-

vious to that date were made to the health officer of the township.

CHICAGO, HURON COUNTY.

Estimated population, 3,000.

Person making report, W. A. Williams, clerk.

Health officer, Dr. A. R. Kauffman
Cerk, W. A. Williams.

1. \$80.00.
2. None.
3. Health officer, \$120; sanitary policeman, what he makes.
4. One.
5. Yes.
6. Eighteen.
8. Yes.
9. Twenty.
10. All.
11. Nothing done until present health officer was appointed. He made arrangements with a man to collect as fast as accumulated and at a cost of 25 cents per month, paid by each family.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 1; measles, 14. Total number of infectious diseases, 17.

8. No.
9. None.
10. None.
10. None.
12. No.
13. No.

CLARINGTON, MONROE COUNTY.

Estimated population, 904.

Person making report, T. S. Strickling, clerk of board.

Health officer, C. T. Reiley.
Clerk, T. S. Strickling.

1. \$289.51.
2. \$254.51.
3. Health officer, \$20; clerk, \$15; sanitary policeman, average \$1.25 per day.
4. As many as are required; none regular.
5. No.
6. Sixteen.
8. No.
9. Twenty.
10. Twenty.
11. By burying it.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 14; typhoid fever, 2. Total number of infectious diseases, 16.

CHICKASAW, MERCER COUNTY.

Estimated population, 310.

Person making report, H. S. Schaefer, mayor.

Health officer, H. P. Schaefer.
Clerk, Gerd. Schroeder.

1. None.
2. None.
2. Health officer, none; clerk, none; sanitary policeman, none.
4. City marshal acts as sanitary policeman.
6. Twelve; monthly.
7. No suits brought.

CLARKSBURG, ROSS COUNTY.

Estimated population, 700.

Person making report, William Ware, health officer.

Health officer, William Ware.

3. Health officer, \$5.
4. No report.

Cases of infectious diseases reported: Typhoid fever, 7.

CLARKSVILLE, CLINTON COUNTY.

Estimated population, 500.

(See questions on page 273.)

Person making report, C. W. Snook, M. D., health officer.

Health officer, C. W. Snook, M. D.
Clerk, J. R. Burton.

1. \$85.
2. None.
3. Health officer, \$25; clerk, \$25; sanitary policeman, \$25.
4. One.
5. Yes; employed by the year.
6. Five.
7. No suits brought.
8. Keep a record of deaths and infectious and contagious diseases only.
9. Three.
10. Three.
11. No system adopted for collection of garbage.
12. No.
13. No.

Cases of infectious diseases reported: None.

CLEVELAND HEIGHTS, CUYAHOGA COUNTY.

Person making report, F. F. Quilliams, M. D., health officer.

Health officer, F. F. Quilliams, M. D.
Clerk, Hunter.

1. \$50.
2. None.
3. Health officer, \$50 per year.
4. None.
6. Twelve.
8. No.
9. None.
11. None.
12. No.
13. No.

Cases of infectious diseases reported; diphtheria, 1; scarlet fever, 1; measles, 12. Total number of infectious diseases, 14.

CLEVES, HAMILTON COUNTY.

Estimated population, 1,600.

Person making report, D. W. Gwaltney, clerk Board of Health.

Health officer, Dr. C. W. Smedley.
Clerk, D. W. Gwaltney.

1. \$180.
2. None.
3. Health officer, \$120; clerk, \$50; sanitary policeman, for time employed.
4. One.
5. No.
6. Twelve.
7. Prosecutions for polluting running streams; dismissal on account of a faulty affidavit with promise to not commit the offense again.
8. Yes.
9. Thirty-six.
10. Twenty-three.
11. None.
12. No.
13. No.

CLIFTON, GREENE COUNTY.

Estimated population, 500.

Person making report, Dr. J. H. Harris, health officer.

Health officer, J. H. Harris, M. D.
Clerk, James Goudy.

1. \$16.
2. None.
3. Health officer, none; clerk, \$1 per meeting; sanitary policeman, \$12 per year.
4. One.
5. Yes.
6. Four.
8. Yes.

Cases of infectious diseases reported: Diphtheria, 1. Total number of infectious diseases, 1.

CLYDE, SANDUSKY COUNTY.

Estimated population, 3,000.

Person making report, F. G. Tuttle, health officer.

Health officer, F. G. Tuttle.
Clerk, W. T. Mann.

1. Don't know.
3. Health officer, \$84; clerk, nothing; sanitary policeman, none.
6. Can't say.
7. None.
8. Yes.
9. Don't know; a great plenty.
10. All.
11. Each family takes care of its own.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 15; diphtheria, 4; scarlet fever, 4; typhoid fever, 5; measles, 2; chicken pox, 3. Total number of infectious diseases, 33.

COLDWATER, MERCER COUNTY.

Estimated population, 700.

Person making report, J. R. Desch. clerk.

Health officer, Dr. C. F. Bolman.
Clerk, J. R. Desch.

1. \$326.11.
2. About \$300.
3. Health officer, \$3 for quarantining each case, also disinfecting same; clerk, none; sanitary policeman, 75 cents per day when employed.
4. One.
5. No.
6. Eight.
7. None.
8. No.
9. None.
10. None.
11. We have no system of collection, but it is brought out of corporation to dumping grounds.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 40; diphtheria, 10; membranous croup, 1; scarlet fever, 5. Total number of infectious diseases, 56.

COLLEGE HILL, HAMILTON COUNTY.

Estimated population, 1,142.

Person making report, J. E. Deininger. health officer.

Health officer, J. E. Deininger.

Clerk, C. R. Wild.

1. \$65.
2. \$20.
3. Health officer, none; clerk, none; sanitary policeman, none.
4. None.
6. Five.
7. None.
8. No.
9. None.
10. None.
11. None necessary.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 2; scarlet fever, 13; typhoid fever, 10; measles, 3. Total number of infectious diseases, 29.

COLLINWOOD, CUYAHOGA COUNTY.

Estimated population, 5,325.

Person making report, Dr. P. E. Kerlin, health officer.

Health officer, Dr. P. E. Kerlin.

Clerk, D. R. King.

1. \$2,061.90.
2. \$573.58.
3. Health officer, \$300; clerk, \$150; sanitary policeman, \$300.
4. One.
5. Yes.
6. Nine.
8. Yes.
9. Twenty.
10. Seventeen.
11. Under contract night soil is removed four times yearly, but garbage has been removed by solicitation.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 10; scarlet fever, 10; typhoid fever, 6; whooping cough, 2; measles, 11. Total number of infectious diseases, 40.

COLUMBIANA, COLUMBIANA COUNTY.

Estimated population, 2,000.

Person making report, George Roninger, health officer.

Health officer, George Roninger.
Clerk, H. O. Newell.

1. About \$65.

2. None.

3. Health officer, \$30; clerk, \$6.

4. None.

6. Four.

7. None.

8. No.

9. Not very many.

10. All.

11. No regular system adopted for garbage; each one must burn it or dispose of it in some way so it will not cause sickness; no family is allowed to throw garbage or waste water on their lots; if any do so, the health officer notifies them to dispose of it.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 12; typhoid fever, 6; whooping cough, 12; measles, 2. Total number of infectious diseases, 33.

COLUMBUS GROVE, PUTNAM COUNTY.

Estimated population, 2,000.

Person making report, John F. Bogart, health officer.

Health officer, John F. Bogart.
Clerk, James Belford.

1. None.

2. None.

Health officer, \$50; clerk, \$10; sanitary policeman, \$15.

4. One.

5. Yes.

7. None.

8. Of deaths and infectious and contagious diseases only.

9. 70.

10. About all.

11. Ordered to be put in barrels and hauled off to the dump.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 48; typhoid fever, 2. Total number of infectious diseases, 50.

CORNING, PERRY COUNTY.

Estimated population, 1,500.

Person making report, John Snyder, health officer.

Health officer, John Snyder.

Clerk, Dr. C. E. Bradshaw.

1. \$15.

2. None.

3. Health officer, \$5 per month; clerk, none.

4. None.

6. Three.

7. None.

8. Yes.

9. Three.

10. Three.

11. Placed in barrels and hauled away.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 1; whooping cough, 4; measles, 2. Total number of infectious diseases, 10.

CORTLAND, TRUMBULL COUNTY.

Estimated population, 800.

Person making report, N. M. Richards, clerk.

- Health officer, Dr. J. Ward.
 Clerk N. M. Richards.
1. \$15.
 2. Not any.
 3. Health officer, nothing; clerk, nothing; sanitary policeman, nothing.
 4. Two.
 5. Yes.
 6. One each month.
 8. Yes.
 12. No.
 13. No.
-
4. One.
 5. Yes.
 6. Twelve.
 7. None.
 8. Not of births and deaths, but of infectious and contagious diseases.
 9. Three.
 10. Three.
 11. No system adopted.
 12. No.
 13. No.

Cases of infectious diseases reported: Diphtheria, 1; measles, 5. Total number of infectious diseases, 6.

COVINGTON, MIAMI COUNTY.

- Estimated population, 1825.
 Person making report, R. M. Shellabarger, health officer.
 Health officer, R. M. Shellabarger.
 Clerk, H. W. Kendall.
1. \$75.
 2. Not any.
 3. Health officer, \$60; clerk, 25 cents a meeting.
 4. None.
 6. Twelve.
 8. Yes, except births.
 9. About 25.
 10. All.
 11. Each one compelled to dispose of his own garbage.
 12. No.
 13. Yes.

Cases of infectious diseases reported: Scarlet fever, 14; typhoid fever, 30; measles, 55. Total number of infectious diseases, 99.

CRESTLINE, CRAWFORD COUNTY.

- Estimated population, 3500.
 Person making report, Jacob Newman, sanitary policeman.
 Health officer, A. J. Clover.
 Clerk, F. J. Gosser.
1. \$129.50.
 2. None.
 3. Health officer, \$50; clerk, \$25; sanitary policeman, \$50.

CRESTON, WAYNE COUNTY.

- Estimated population, 893.
 Person making report, C. A. Mellen, health officer.
 Health officer, C. A. Mellen.
1. Nothing.
 2. Nothing.
 3. Health officer, \$30.
 4. None.
 6. None; health officer consults with village council when necessary.
 8. Yes.
 9. Twelve.
 10. Twelve.
 11. Garbage is generally placed in barrels and dumped at a convenient and suitable place outside corporation limits.
 12. No.
 13. No.

Cases of infectious diseases reported: Scarlet fever, 1. Total number of infectious diseases, 1.

CROOKSVILLE, PERRY COUNTY.

- Estimated population, 1,500.
 Person making report, C. T. Allen, health officer.
 Health officer, . T. Allen.
 Clerk, D. E. Giles.
- \$1. \$90.

2. \$30.
3. Health officer, \$50; clerk, \$10.
4. None.
6. Twelve.
8. No.
2. 200.
10. 175.
11. Have no system.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 3; typhoid fever, 2; whooping cough, 20; measles, 4. Total number of infectious diseases, 29.

CROTON, LICKING COUNTY.

- Estimated population, 500.
 Person making report, Dr. S. S. Reynolds, health officer.
 Health officer, Dr. S. S. Reynolds.
 Clerk E. E. Shafer.
1. None.
 2. None.
 3. Health officer, nothing; clerk, nothing.
 4. None.
 6. Two.
 7. None.
 8. No.
 9. None.
 11. None.
 12. No.
 13. No.

CUMBERLAND, GUERNSEY COUNTY.

- Estimated population, 650.
 Person making report, George E. McEndree, health officer.
 Health officer, C. E. McEndree.
 Clerk, A. E. Walters, M. D.
1. \$5.
 2. None.
 3. Health officer, \$5; clerk, nothing.
 4. None.
 6. Two.

7. None.
8. No.
9. Three.
10. Three.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 3; measles, 84. Total number of infectious diseases, 87.

CUSTAR, WOOD COUNTY.

- Estimated population, 300.
 Person making report, Ed France, health officer.
 Health officer, Ed France.
 Clerk, G. W. Dorson.
1. \$10.
 2. None.
 4. None.
 6. Twelve.
 7. None.
 8. Not of births or deaths.
 9. Four.
 10. Four.
 11. Hauling on farm land.
 12. No.
 13. No.

Cases of infectious diseases reported, none.

This village has been free of all contagious diseases during the year past.

CUYAHOGA FALLS, SUMMIT COUNTY.

- Estimated population, 3500.
 Person making report, I. N. Reid, health officer.
 Health officer, I. N. Reid.
 Clerk, Chas. Widner.
1. About \$900.
 2. All.
 3. Health officer, \$25; clerk, \$1 a meeting.
 4. None.
 6. Four.

7. None.
8. Yes.
9. None.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 16; diphtheria, 1; scarlet fever, 11; typhoid fever, 1. Total number of infectious diseases, 29.

8. Yes.
9. Don't know.
10. Several.
11. Have no system; order it carted away and buried or burned.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 5; typhoid fever, 2. Total number of infectious diseases, 7.

DALTON, WAYNE COUNTY.

Estimated population, 800.

Person making report, A. H. Arick, health officer.

Health officer, A. H. Arick.
Clerk, J. W. Chaffin.

1. \$17.
2. None.
3. Health officer, \$10; clerk, nothing; sanitary policeman, paid by the day.
4. One.
5. Only when needed.
6. Seven.
7. None.
8. No.
9. Seventeen.
10. Seventeen.
11. Each takes care of their own.
12. No.
13. No.

DE GRAFF, LOGAN COUNTY.

Estimated population, 1200.

Person making report, J. W. Hendershott, health officer.

Health officer, J. W. Hendershott.
Clerk, Louis Shultz.

1. \$25.
2. None.
3. Health officer, \$50 per year; clerk, none.
4. None.
6. Twelve.
7. No suits.
8. No record of births, but of deaths and contagious diseases.
9. Fifteen.
10. Fifteen.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: None.

DANVILLE, KNOX COUNTY.

Estimated population, 500.

Person making report, C. R. Bradfield, health officer.

Health officer, C. R. Bradfield.
Clerk, W. H. Yearly.

1. \$40.60.
2. \$3.00.
3. Health officer, none; clerk, none; sanitary policeman, paid by the day.
4. One.
5. Only as needed.
6. Eight or ten.

DELLROY, CARROLL COUNTY.

Estimated population, 550.

Person making report, Isaac Russell, health officer.

Health officer, Isaac Russell.
Clerk, John C. Shotwell.

1. \$5.
2. None.
4. One.
5. Yes.
6. Four.
9. Three.
10. Two.

11. We notify the street commissioner.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 3.

8. Of infectious and contagious diseases, but not of deaths or births.

9. One.

10. One.

12. No.

13. No, but think they will soon.

Cases of infectious diseases reported: Scarlet fever, 6; typhoid fever, 5. Total number of infectious disease, 11.

DELPHOS, ALLEN AND VAN WERT COUNTIES.

Estimated population, 4517.

Person making report, N. E. Brundage, M. D., health officer.

Health officer and clerk, N. E. Brundage.

1. \$539.87.

2. \$297.80.

3. Health officer and clerk, \$200; sanitary policeman, \$150.

4. One.

5. Yes.

6. Five.

7. None.

8. Yes.

9. Several.

10. All that were reported.

11. The village has a dump ground outside the corporate limits on which it disposes of its garbage.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 1; scarlet fever, 10; measles, 2. Total number of infectious diseases, 15.

DESHLER, HENRY COUNTY.

Estimated population, 2,000.

Person making report, James E. Robinson, health officer.

Health officer, James E. Robinson.

1. \$5.00.

2. None.

3. Health officer, \$100.

4. None.

6. Four.

7. Not any.

DILLONVALE, JEFFERSON COUNTY.

Estimated population, 2,000.

Person making report, J. L. King, health officer.

Health officer, J. L. King.

1. \$20.

2. \$13.50.

3. Health officer, \$1.50 per day.

8. Of infectious and contagious diseases, but not of births or deaths.

9. Three.

10. Three.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2.

DOYLESTOWN, WAYNE COUNTY.

Estimated population, 1,100.

Person making report, Dr. B. C. Pilkey, health officer.

Health officer, Dr. B. C. Pilkey.

1. About \$20.

2. None.

3. Health officer, \$35 per year.

4. None.

8. All except records of births.

9. None.

10. None.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; typhoid fever,

1; other infectious diseases, 2. Total number of infectious diseases, 4.

DRESDEN, MUSKINGUM COUNTY.

Estimated population, 1,650.

Person making report, C. W. Carter, health officer.

Health officer, C. W. Carter.

Clerk, S. B. Darner.

1. \$145.00.

2. None.

3. Health officer, \$60; clerk, \$20.

6. Thirty-eight.

8. Yes.

9. Forty-five.

10. All.

11. Gathered and burnt.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 5; typhoid fever, 2. Total number of infectious diseases, 7.

DUBLIN, FRANKLIN COUNTY.

Estimated population, 275.

Person making report, Dr. Charles L. Dolle, health officer.

Health officer, Dr. Charles L. Dolle.

1. None.

3. Health officer, \$5.

4. None.

9. None.

11. Used for feeding hogs; collected by owner of hogs.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 3. Total number of infectious diseases, 5.

DUNKIRK, HARDIN COUNTY.

Estimated population, 1,250.

Person making report, Dr. C. C. McLaughlin, health officer.

Health officer, Dr. C. C. McLaughlin.

Clerk, W. H. Wise.

1. \$8.

2. None.

3. Health officer and clerk, nothing; sanitary policeman, \$1 per day.

4. One.

5. No.

6. Eight.

8. Yes.

9. Two.

10. Two.

11. The marshal sees that garbage is removed. It is hauled away and burned or buried.

12. No.

13. No.

Cases of infectious diseases reported: Whooping cough, 40.

DUPONT, PUTNAM COUNTY.

Estimated population, 500.

Person making report, T. R. Hart, health officer.

Health officer, T. R. Hart.

Clerk, C. A. Tracy.

1. \$6.95.

2. None.

3. Health officer, no fixed salary.

4. None.

6. None.

7. No prosecutions or suits of any kind.

8. Infectious and contagious diseases only.

9. None.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2. Total number of infectious diseases, 2.

EAST CLEVELAND, CUYAHOGA COUNTY.

Estimated population, 4,000.

Person making report, J. H. Stamberger, health officer.

Health officer, J. H. Stamberger.

Clerk, P. O. Phillips.

1. \$641.72.

2. \$143.25.

3. Health officer, \$32.50; is also inspector of plumbing and sewers; clerk, none; sanitary policeman, none.

4. None.

6. Fifteen.

7. One case where doctor failed to report scarlet fever; fined the costs. Several cases where plumbers did not comply with rules and regulations; fined costs. Several cases where orders had been given to abate nuisances; fined the costs.

8. It does. Doctors are negligent about reporting births.

9. None.

10. Seven.

11. A private individual collects the garbage, in most cases, twice per week at 10 cents per collection, and he then takes and throws it on the ground and plows it under.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 5; scarlet fever, 68; measles, 95. Total number of infectious diseases, 169.

EAST PALESTINE, COLUMBIANA COUNTY.

Estimated population, 2,600.

Person making report, Levi Neville, health officer.

Health officer and clerk, Levi Neville.

1. \$66.

2. None.

4. None.

5. No.

6. Twelve.

7. No suits.

9. Eighty.

10. All.

11. It is collected and burned outside the corporation.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; measles, 6. Total number of infectious diseases, 7.

EAST SPRINGFIELD, JEFFERSON COUNTY.

Estimated population, 225.

Person making report, Dr. H. L. Fiscus, health officer.

Health officer, Dr. H. L. Fiscus

1. None.

3. Health officer, \$15 per year.

7. No prosecutions.

8. Yes.

9. None.

10. None.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 1. Total number of infectious diseases, 4.

EATON, PREBLE COUNTY.

Estimated population, 3,800.

Person making report, John C. McDonald, marshal.

Health officer, John C. McDonald.

Clerk, C. R. Gilmore.

1. \$42.50.

2. None.

3. Health officer, \$96.

4. None.

6. One.

7. The stock yards were declared a nuisance and brought into court; overruled.

8. No.

9. Four.

10. All four.

11. It is hauled away to a dump in a wagon.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 2; typhoid fever, 23; whooping cough, 53; other infectious diseases, 10. Total number of infectious diseases, 88.

EDON, WILLIAMS COUNTY.

Estimated population, 800.

Person making report, H. F. Alwood, health officer.

Health officer, H. F. Alwood.

Clerk, M. E. Townsend.

1. \$15.

2. None.

2. Health officer, 15 cents per hour actual labor performed; clerk, \$10 per year.

4. None.

6. Eight.

7. No suits were brought.

8. Yes.

11. Haul it away in barrels.

12. No.

13. No.

Case of infectious disease reported: Scarlet fever, 1.

ELDORADO, PREBLE COUNTY.

Estimated population, 400.

Person making report, Dr. A. C. Carney.

The town council failed to appoint any board of health or health officer. The time of the health officer as well as all members of the board, except one or two, expired in the spring of 1902.

3. Health officer and clerk, nothing; sanitary policeman, 10 cents per hour when employed.

4. One, when there was a board.

6. Three until April; none since.

ELMORE, OTTAWA COUNTY.

Estimated population, 1,025.

Person making report, Dr. R. A. Willett, health officer.

Health officer and clerk, Dr. R. A. Willett.

1. \$34.

2. None.

3. Health officer and clerk, \$12; sanitary policeman, \$12.

4. One.

6. Yes.

8. Four.

7. None.

8. Yes.

9. Three.

10. Three.

11. No system adopted. Each person takes care of his own, and when they occasionally fail an order from the board soon brings good results.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 2; whooping cough, 27; measles, 19; other infectious diseases, 32. Total number of infectious diseases, 81.

ELMWOOD PLACE, HAMILTON COUNTY.

Estimated population, 2,800.

Person making report, Dr. E. T. Busching, health officer.

Health officer and clerk, Dr. E. T. Busching.

1. \$412.56. Sanitary fund is now overdrawn over \$300.

2. \$326.56.

3. Health officer and clerk, \$60; sanitary policeman, \$24.

4. One.

5. Yes.

6. Fourteen.

7. None.

8. Yes.

9. Five.

10. All.

11. The village has its own horse and wagon and employs a man by the year to gather garbage and ashes four days of each week. This is hauled across Mill Creek and dumped on its bank. The remaining two days this man cleans the streets and hauls the refuse to the same dump.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 7; membranous croup, 1; scarlet fever, 2; typhoid fever, 1; measles, 21. Total number of infectious diseases, 32.

EMPIRE, JEFFERSON COUNTY.

Estimated population, 600.

Person making report, Mayor Whitcomb. No board of health.

Health officer, John Hunter.

Clerk, Frank Stone.

1. None.

8. No.

9. None.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 5.

EUREKA, GALLIA COUNTY.

Estimated population, 169.

Person making report, M. Thomas, mayor.

No official board of health.

1. None.

3. None.

4. None.

9. None.

10. None.

11. None.

12. No.

FARMERSVILLE, MONTGOMERY COUNTY.

Estimated population, 520.

Person making report, A. W. Beall, health officer.

Health officer, A. W. Beall.

1. None.

2. None.

3. Health officer, \$50.

4. None.

8. Yes.

9. Twenty-eight.

10. All.

12. No.

13. No.

Case of infectious disease reported: Whooping cough, 1.

FAYETTE, FULTON COUNTY.

Estimated population, 850.

Person making report, Newton Ward, clerk board of health.

Health officer, H. W. Ford.

Clerk, N. H. Ward.

1. \$10.

2. None.

3. Health officer, \$5; clerk, \$5.

4. None.

6. Seven.

8. No; the clerk keeps private account and reports same.

9. One.

10. One.

11. No system has as yet been adopted. The collection of garbage is prohibited around residences by compelling parties owning property to keep such clean and see that same is kept clean.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 6; mumps, 15. Total number of infectious diseases, 21.

FELICITY, CLERMONT COUNTY.

Estimated population, 696.

Person making report, Dr. W. C. Langman, health officer.

Health officer, Dr. W. C. Langman.
Clerk, Fred Summerman.

1. \$6.20.
2. None.
3. Health officer, \$25.
4. None.
6. Five.
8. Yes.
9. Eighteen.
10. Eighteen.

11. None, except that garbage is dumped in the streets and periodically hauled away and placed upon gardens in waste places.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 111.

Health officer, Willam Thompson.
Clerk, John Burr.

1. \$35.

2. None.

Health officer and clerk, nothing; sanitary policeman, \$5.

4. One.

5. Yes. The town marshal is the sanitary police officer and his salary was increased \$5 for this.

6. Four.

8. No.

11. Each resident is required to take care of garbage by burial, field disposal or burning.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 9; typhoid fever, 1; other infectious diseases, 2. Total number of infectious diseases, 12.

FERNBANK, HAMILTON COUNTY.

Estimated population, 310.

Person making report, W. P. Bailey, mayor.

Health officer, J. E. Hickman.

Clerk, W. A. White.

1. \$76.
2. All.
6. Two.
8. No.
9. None.
11. What is not burned is carted away.
12. No.
13. No.

Case of infectious disease reported: Smallpox, 1.

FOREST, HARDIN COUNTY.

Estimated population, 1,300.

Person making report, Dr. W. T. Gemmill, clerk board of health.

Health officer, Dr. W. T. Gemmill.

1. \$110.
2. None.
3. Health officer, nothing; sanitary policeman, \$100.

4. One.

5. Yes.

6. Four.

7. None brought.

8. Only partial.

9. Ten.

10. Ten.

11. Collected in barrels and hauled out on farms and buried.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 5; typhoid fever, 2; whooping cough, 25; measles, 50. Total number of infectious diseases, 82.

FLORIDA, HENRY COUNTY.

Estimated population, 300.

Person making report, William Thompson, health officer.

FORT JENNINGS, PUTNAM
COUNTY.

Estimated population, 400.

Person making report, Dr. Joseph
E. Stephan, health officer.

Health officer, Dr. Joseph E. Ste-
phan.

Clerk, Ferd Heising.

1. \$3.70.
2. None.
3. Health officer, none; clerk,
none.
4. None.
6. None.
8. No.
9. One.
10. One.
11. None.
12. No.
13. No.

Cases of infectious diseases re-
ported, none.

FORT RECOVERY, MERCER
COUNTY.

Estimated population, 1,100.

Person making report, Dr. W. R.
Taylor, health officer.

Health officer, Dr. W. R. Taylor.

Clerk, Fred Tegler.

1. \$483.89.
2. \$370.50.
3. Health officer, \$1 each visit, \$3
disinfecting a house; clerk, \$8.32;
sanitary policeman, \$132.80.
4. One; he is paid for the time re-
quired in discharge of his duties.
5. Yes.
6. Twenty.
8. No.
9. Twelve.
10. Ten.
11. Refuse material is hauled to
dumping ground outside the village.
12. No.
13. No.

Cases of infectious diseases re-
ported: Smallpox, 18; diphtheria, 9;

scarlet fever, 22; typhoid fever, 6;
Total number of infectious diseases, 55.

FRANKLIN, WARREN COUNTY.

Estimated population, 3,000.

Person making report, Dr. D. A.
Williams, health officer.

Health officer, Dr. D. A. Williams.

Clerk, S. S. Tibbals.

1. \$300 to \$400.
2. None.
3. Health officer, \$100; clerk, \$25;
sanitary policeman, 15 cents per hour.
4. One.
5. Yes.
6. Sixteen.
7. None.
8. Of deaths only.
9. A great many.
10. All.
11. None.
12. No.
13. No.

Cases of infectious diseases re-
ported: Scarlet fever, 30; measles,
350. Total number of infectious dis-
eases, 380.

FRANKFORT, ROSS COUNTY.

Estimated population, 850.

Person making report, Dr. L. N.
Matteson, health officer.

Health officer, L. N. Matteson.

1. None.
2. None.
4. None.
6. None.
7. Not any.
8. Yes.
9. Two.
10. Two.
11. Have no system.
12. No.
13. No.

Cases of infectious diseases re-
ported: Measles, 18. Total number of
infectious diseases, 18.

FREDERICKSBURG, WAYNE
COUNTY.

Estimated population, 600.

Person making report, Dr. F. S. McKinney, health officer.

Health officer, Dr. F. S. McKinney;
Clerk, T. M. Freed.

1. None.
2. None.
3. Health officer, nothing; clerk, 50 cents per meeting.
4. None.
6. Six.
8. No.
9. Eight.
10. All reported.
11. Have no system.
12. No.
13. No.

Person making report, Dr. F. C. Smith, health officer.

Health officer, Dr. F. C. Smith.
Clerk, W. K. Gault.

1. \$186.25.
2. None.
3. Health officer, \$100; clerk, \$50.
4. The only policeman here acts as sanitary policeman when needed.
5. No.
6. Eight.
7. No prosecutions during year.
8. Yes.
9. Sixty-eight.
10. Fifty-four.
11. Only system for collecting garbage is farmers, who come in town twice a week and collect garbage from hotels and restaurants; private families take care of their own.
12. Yes.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 10; scarlet fever, 2; typhoid fever, 3. Total number of infectious diseases, 15.

FREEPORT, HARRISON COUNTY.

Estimated population, 800.

Person making report, W. H. Lewis, health officer.

Health officer, W. H. Lewis.
Clerk, Dr. Howell.

1. \$87.65.
2. \$21.
3. Health officer, \$20; clerk, \$12; sanitary policeman, \$1.50 per day.
4. One.
5. One when needed.
6. Seven.
7. No suits.
8. No.
9. Ten.
10. All.
11. No regular system. Some is hauled out or buried in the ground.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 26; typhoid fever, 1. Total number of infectious diseases, 27.

GENEVA, ASHTABULA COUNTY.

Estimated population, 2,300.

GEORGETOWN, BROWN COUNTY.

Estimated population, 1,625.

Person making report, Isaac W. Johnson, health officer.

Health officer, Isaac W. Johnson.

1. \$190. This was spent for a sewer.
2. None.
4. None.
6. None.
7. There have been no suits brought.
8. Of births and deaths only.
9. None.
10. None.
11. The garbage is given to the farmers. They haul it away for it.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fe-

ver, 7; whooping cough, 8. Total number of infectious diseases, 18.

GERMANTOWN, MONTGOMERY COUNTY.

Estimated population, 2,000.

Person making report, William Schaeffer, health officer.

Health officer, William Schaeffer.

Clerk pro tem, Dr. J. S. Robertson.

1. \$300.

3. Health officer, \$50; clerk, \$1 per meeting night; sanitary policeman, \$50.

4. One.

5. Yes.

6. Five.

7. There were no prosecutions.

8. Yes.

9. Eleven.

10. All were abated.

11. Have a horse and wagon belonging to the corporation and employ a man by the year to remove all garbage to a dumping place suitable for the purpose outside the corporation limits.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 89.

GIBSONBURG, SANDUSKY COUNTY.

Estimated population, 1,791.

Person making report, W. O. Dipman, health officer.

Health officer, W. O. Dipman.

Clerk, Forsythe.

1. \$145.05.

2. \$108.

3. Health officer, \$2 per day.

8. Yes; except births.

11. Hauled about one and one-half miles from town and buried. This is

paid for by owner of premises from which removed.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 12; whooping cough, no report; measles, 1. Total number of infectious diseases, 15.

GIRARD, TRUMBULL COUNTY.

Estimated population, 2,800.

Person making report, Dr. D. R. Williams, health officer.

Health officer, Dr. D. R. Williams.

Clerk, I. R. Howels.

1. \$263.45.

2. None.

3. Health officer, \$100; clerk, \$50; sanitary policeman, \$100.

4. One.

5. Yes.

6. Seven.

7. There were no suits brought.

8. Births and deaths only.

9. Twenty-two.

10. Eighteen.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 3; membranous croup, 1; scarlet fever, 12; typhoid fever, 21; whooping cough, 11; measles, 6; chicken pox, 5. Total number of infectious diseases, 59.

GLANDORF, PUTNAM COUNTY.

Estimated population, 700.

Person making report, Theo. Heckman, clerk.

Health officer, Joseph Horstman.

Clerk, Theo. Heckman.

1. \$281.79.

2. The whole amount.

3. Health officer, \$207, no fixed salary; clerk, \$5.00.

4. None.
6. Twelve.
7. Have had none.
8. No.
9. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, about 30 cases, not all, were reported.

GLENDALE, HAMILTON COUNTY.

Estimated population, 1,545.

Person making report, Clifford Allen, health officer.

Health officer, Clifford Allen.

1. \$239.25.
2. \$84.25.
3. Health officer, \$100; sanitary policeman, \$50.
4. One.
5. Yes.
6. Three.
8. Yes.
9. Two.
10. Two.
11. Feed to pigs and chickens.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 1; scarlet fever, 2; measles, 120. Total number of infectious diseases, 126.

GLENMONT, HOLMES COUNTY.

Estimated population, 205.

Person making report, George L. Robinson, mayor.

1. None.
4. None.
6. Five.
8. Yes.
12. No.
13. No.

Cases of infectious diseases reported: Membranous croup, 1.

GLOUSTER, ATHENS COUNTY.

Estimated population, 2,155.

Person making report, Dr. J. M. Rhodes, health officer.

Health officer, Dr. J. M. Rhodes.

Clerk, Otto Roush.

1. About \$300.
 2. Nothing.
 3. Health officer, \$60.
 4. None.
 6. Twelve.
 7. None.
 8. No.
 9. Thirty.
 10. All.
 11. No system of collecting; every person must remove his own. Have a dumping ground and burn and cover with dirt.
 12. No.
 13. No.
- Cases of infectious diseases reported: Diphtheria, 3; membranous croup, 1; scarlet fever, 1. Total number of infectious diseases, 5.

GORDON, DARKE COUNTY.

Estimated population, 210.

Person making report, Fred S. Miller, president.

Health officer, Dr. H. Y. Silver.

Clerk, W. H. Ditmer.

3. Health officer, no salary.
4. One.
5. Yes.
6. One.
7. No.
8. Yes.
9. Not any.
10. None.
11. Burn and bury it.
12. No.
13. Not yet.

Cases of infectious diseases reported: Typhoid fever, 6; whooping cough, 12; measles, 15. Total number of infectious diseases, 33.

(See questions on page 273.)

GRAFTON, LORAIN COUNTY.

Estimated population, 1,200.

Person making report, C. N. Storrs,
health officer.

Health officer, C. N. Storrs.

2. None.

3. Health officer, \$60 per year.

4. One.

5. Yes.

8. No.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 2; scarlet fever, 8; whooping cough, 4. Total number of infectious diseases, 14.

2. None.

3. Health officer, \$90; clerk, \$40.

4. None.

6. Fifteen.

7. No suits brought.

8. Yes.

9. Fourteen.

10. Fourteen.

11. No need.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 7; scarlet fever, 1. Total number of infectious diseases, 8.

GRAYSVILLE, MONROE COUNTY.

GRAND RAPIDS, WOOD COUNTY.

Estimated population, 600.

Person making report, William
Maily, health officer.

Health officer, William Maily.

Clerk, Frank Stump.

1. \$15.

2. None.

3. Health officer, no salary.

4. None.

8. Deaths and contagious diseases only.

9. None.

11. Haul it out on farming land and have it plowed under.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 30.

Person making report, W. E. Barker,
health officer.

Health officer, W. E. Barker.
Clerk, William Gatchell.

1. \$140.

3. Health officer, \$240.

4. None.

6. Five.

8. No.

9. One.

10. One.

12. No.

13. No.

GREEN CAMP, MARION COUNTY.

Estimated population, 400.

Person making report, G. W. Collins,
health officer.

Health officer, G. W. Collins.

Clerk, Job Pettit.

1. None.

4. None.

6. Ten.

8. They do.

9. Two.

10. Two.

11. By burning.

GRAND RIVER, LAKE COUNTY.

Estimated population, 400.

Person making report, H. S. Barton,
health officer.

Health officer, H. S. Barton.

Clerk, James Hutchinson.

1. \$551.90.

GREENFIELD, HIGHLAND COUNTY

Estimated population, 5,000.

Person making report, C. F. Owens, clerk.

Health officer, Charles Leverle.

Clerk, C. F. Owens.

1. \$1,208.
2. \$1,118.
3. Health officer, \$50; clerk, \$25.
4. As many as are required to enforce quarantine.
5. No.
6. Twenty-one.
8. Yes.
9. Forty-eight.
10. All.
11. Have no system.
12. No.
13. Yes.

Cases of infectious diseases reported: Smallpox, 84; diphtheria, 1; membranous croup, 3; scarlet fever, 2; typhoid fever, 28; measles, 7. Total number of infectious diseases, 125.

GREENWICH, HURON COUNTY.

Estimated population, 1,000.

Person making report, J. H. Baker, health officer.

Health officer, J. H. Baker.

Clerk, C. E. Kniffin.

1. \$30.
2. None.
3. Health officer, \$25.
4. One.
5. Yes.
6. Three.
8. No.
9. One.
10. One.
11. None.
12. No.
13. No.

GROVER HILL, PAULDING COUNTY

Estimated population, 800.

Person making report, J. S. Black, secretary.

Health officer, E. L. Shaw.

Clerk, J. S. Black.

1. \$9.25.
2. Not any.
3. Health officer gets paid for what he does; clerk, not any.
4. Not any.
5. Only when wanted.
6. Twelve.
11. The health officer gives parties notice and they pay for removal to garbage ground by a special person for that purpose.
12. No.
13. No.

HAMLER, HENRY COUNTY.

Estimated population, 600.

Person making report, William Barhite, Sr., health officer.

Health officer, William Barhite, Sr. Clerk, W. R. Stateler.

1. \$10.
2. None.
3. Health officer, no salary; clerk, no salary; sanitary policeman, none.
4. None.
6. Ten.
7. No suits brought.
8. Of contagious diseases only.
9. Ten.
10. Nine.
11. Carted away and burned or buried.
12. No.
13. No.

HANGING ROCK, LAWRENCE COUNTY.

Person making report, Joseph Kinkaid, health officer.

Health officer, Joseph Kinkaid.

Clerk, William Crawford.

1. \$3.40.

2. \$2.80.
3. Health officer, \$25; clerk \$25.
4. None.
6. Twenty-six.
7. None.
8. Yes.
9. Thirteen.
10. All.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 2.

HANOVERTON, COLUMBIANA COUNTY.

Estimated population, 500.

Person making report, G. O. Diezman, health officer.

Health officer, George O. Diezman.
Clerk, L. F. Ling.

1. \$4.50.
2. None.
3. Health officer, what he makes; clerk, what he makes.
4. None.
6. Ten.
7. None.
8. No.
9. Eighteen.
10. All.
11. We have none.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 1; mumps, 2.
Total number of infectious diseases, 3.

HARRISON, HAMILTON COUNTY.

Estimated population, 1,500.

Person making report, Abraham Loos, marshal.

Health officer, Abraham Loos.
Clerk, L. A. Cook.

2. All.
3. Health officer, \$2 per day; sanitary policeman, only when on duty.

4. One; more if necessary.
5. No.
6. We endeavor to meet first Tuesday in month.
8. Keep certificates of contagious only.
9. None.
10. None.
11. None; it is taken up for pigs.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 11; typhoid fever, 1. Total number of infectious diseases, 12.

HARROD, ALLEN COUNTY.

Estimated population, 500.

Person making report John Blair, Sr., health officer.

Health officer, John Blair, Sr.
Clerk, L. T. Hull.

1. \$31.15.
2. None.
3. Health officer, salary not fixed; clerk, \$1 per meeting.
4. None.
6. Six.
7. None.
8. Yes.
9. Three.
10. All.
11. A man is hired by the board who rids the village of all garbage when necessary.
12. None.
13. None.

Cases of infectious diseases reported: Membranous croup, 3; typhoid fever, 2. Total number of infectious diseases, 5.

HARTWELL, HAMILTON COUNTY.

Estimated population, 2,000.

Person making report, Dr. O. W. Butler, health officer.

Health officer, Dr. O. W. Butler.

Clerk, M. V. B. Weighell.

1. \$270.80 (not including salaries).
2. \$255.80.
3. Health officer, \$100; clerk, \$50.
4. None; regular policemen are called upon when necessary.
6. Twelve.
7. No prosecutions.
8. Yes.
9. Four.
10. Four.
11. Collected in barrels and cans and hauled away when receptacles are full. It is taken out into the country and thrown out.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 3; membranous croup, 1; typhoid fever, 2; measles, 4. Total number of infectious, diseases, 12.

HASKINS, WOOD COUNTY.

Estimated population, 500.

Person making report, Dr. H. J. Johnston, health officer.

Health officer, Dr. H. J. Johnston.

Clerk, Charles S. Woodford.

1. \$30.
2. None.
3. Health officer, none; clerk, none; sanitary policeman, \$1 per day, \$1 for each fumigation.
4. One when needed.
5. No.
6. Six (board was organized in September).
7. None.
8. Yes.
9. One.
10. One.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 19; typhoid fever, 4. Total number of infectious diseases, 24.

HEBRON, LICKING COUNTY.

Estimated population, 500.

Person making report, G. N. Brown, health officer.

Health officer, G. N. Brown.

Clerk, W. D. Andrews.

1. \$25.
2. \$10.
3. Health officer, \$10; clerk, \$10; sanitary policeman, \$15.
4. One.
5. Yes.
6. Twelve.
7. None.
8. No.
9. Twenty-five.
10. Twenty-five.
11. Gathered up by wagon and deposited outside of town.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1; typhoid fever, 5; whooping cough, 1. Total number of infectious diseases, 7.

HICKSVILLE, DEFIANCE COUNTY.

Estimated population, 3,000.

Person making report, Amos Forlow, clerk.

Health officer, Benjamin Kelsey.

Clerk, Amos Forlow.

1. \$116.05.
2. Total.
3. Health officer, \$24; clerk, \$24.
4. The health officer does the police work.
5. Only when there is work to do.
6. Twenty.
7. None.
8. Yes.
9. Two.
10. One.
11. Men are employed who gather it up in barrels at night and haul it to the country and it is plowed under. The council has not provided a fixed place.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 10.

HILLSBORO, HIGHLAND COUNTY.

Estimated population, 4,500.

Person making report, Dr. J. D. McBride, health officer.

Health officer, Dr. J. D. McBride.

Clerk, R. W. Lyle.

1. \$447.92.

2. \$140.

3. Health officer, \$75; clerk, \$50; sanitary policeman, \$100.

4. One.

5. Yes.

6. Twenty-one.

8. Yes.

9. Seventy.

10. Sixty-nine.

11. We have no system.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2.

HOLGATE, HENRY COUNTY.

Estimated population, 1,400.

Person making report, G. H. Lampman, mayor.

Have been unable to properly organize board on account of persons declining to serve.

Health officer, W. S. Smith, marshal.

Clerk, James H. Smith.

1. None.

2. None.

3. Health officer, none; clerk, none; sanitary policeman, none.

4. Such duties fall to marshal at present.

5. Yes.

7. No suits brought.

8. No.

9. Twenty-three.

10. All.

11. No garbage collection system.

12. No.

13. No.

Cases of infectious diseases reported: Whooping cough, 14. Total number of infectious diseases, 14.

HOLLANSBURG, DARKE COUNTY.

Estimated population, 400.

Person making report, A. W. Meek, health officer.

1. \$30.

3. Health officer, gets pay for the amount of work done—\$20 or \$25.

6. As we had no business of importance the board did not meet.

8. We keep a record of births and deaths only.

9. Two.

10. Two.

11. We have no regular system.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 4; typhoid fever, 1. Total number of infectious diseases, 5.

HOLMESVILLE, HOLMES COUNTY.

Estimated population, 350.

Person making report, L. F. Miller, secretary.

Health officer and clerk, L. F. Miller.

1. \$20.

2. None.

3. Health officer, \$10; clerk, \$10.

4. None.

6. Four.

7. None.

8. Of deaths, but not births.

9. None.

10. None.

12. No.

13. No.

Cases of infectious diseases reported: None.

HUBBARD, TRUMBULL COUNTY.

Estimated population, 1,500.

Person making report, Dr. W. S. Bond, health officer.

Health officer, Dr. W. S. Bond.

Clerk, J. J. Hammon.

1. About \$40.
2. None.
3. Health officer, \$25; clerk, none; sanitary policeman, \$25.

4. One.

5. No.

6. Two.

7. None.

8. Yes.

9. None.

10. None.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2.

HURON, ERIE COUNTY.

Estimated population, 2,000.

Person making report, S. N. Lennon, health officer.

Health officer, S. N. Lennon.

Clerk, G. B. Morse.

1. \$150.
2. \$53.80.
3. Health officer, \$50; clerk, \$12; sanitary policeman, \$25.

4. One.

5. Yes.

6. Once each month.

8. No.

9. About fifty.

10. All.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 6; scarlet fever, 2; typhoid fever, 13. Total number of infectious diseases, 21.

HUDSON, SUMMIT COUNTY.

Estimated population, 1,100.

Person making report, J. A. Osborne, clerk.

Health officer, H. C. Coolman, M. D.

Clerk, J. A. Osborne.

1. \$86.55.
2. None.
3. Health officer, \$50; clerk, none; sanitary policeman, none.

4. One; this work is done by the marshal of village.

5. Yes.

6. Six.

7. None.

8. Yes.

9. Four.

10. All.

11. None.

12. No.

13. No.

Was appointed health officer late in the year and have no means of getting further reports.

HYDE PARK, HAMILTON COUNTY:

Estimated population, 2,500.

Person making report, Dr. Arthur L. Brown, health officer.

Health officer, Dr. Arthur L. Brown.

Clerk, Arthur L. Brown, M. D.

1. \$75.
2. None.
3. Health officer, \$60; sanitary policeman, \$15.

4. One.

5. Yes.

6. Four.

8. Yes.

9. Ten.

10. Ten.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 1; scarlet fever, 4; typhoid fever, 11; measles, 40. Total number of infectious diseases, 57.

ITHACA, DARKE COUNTY.

Estimated population, 130.

Person making report, J. C. Hamilton, health officer.

Health officer, J. C. Hamilton.

1. None.
 2. None.
 3. Health officer, nothing.
 4. None.
 6. One.
 8. Yes.
 9. None.
 12. No.
 13. No.
-

JACKSON CENTER, SHELBY COUNTY.

Estimated population, 644.

Person making report, William Dowden, health officer.

Health officer, William Dowden.

Clerk, S. D. Lippincott.

2. \$42.25.
3. Health officer, \$30.
4. None.
7. No suits.
8. No.
9. One.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 8; measles, no account was kept. Total number of infectious diseases, 8.

JAMESTOWN, GREENE COUNTY.

Estimated population, 1,200.

Person making report, W. F. McMullen, health officer.

Health officer, W. F. McMillen.

Clerk, C. A. Davis.

1. \$21.55.
2. None.
3. Health officer, none; clerk, none; sanitary policeman, none.

4. One.
 5. Yes.
 6. Five.
 7. None.
 8. Births and deaths only.
 9. Ten.
 10. Ten.
 11. No regular system.
 12. No.
 13. No.
-

JEFFERSONVILLE, FAYETTE COUNTY.

Estimated population, 800.

Person making report, N. C. Wilcox, health officer.

Health officer, N. C. Wilcox.

1. None.
3. Health officer, \$60 per year.
4. None.
6. None.
7. None were brought.
8. Yes.
9. **Thirty or more.**
10. All.
11. Have no system.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 1; typhoid fever, 2; other infectious diseases, 6. Total number of infectious diseases, 9.

JENERA, HANCOCK COUNTY.

Person making report, Charles H. Heldman, health officer.

Health officer, Charles H. Heldman.

Clerk, George Gossman.

1. \$61.60.
2. Not any.
3. Health officer, \$5.00; clerk, \$1.50.
4. Not any.
6. Three.
7. Not any.
8. Births not reported; only deaths and contagious diseases.
9. Seventeen.

10. Seventeen.

11. It is hauled out in the woods and buried two feet below the surface of the earth.

12. Not any.

13. Not any.

JERRY CITY, WOOD COUNTY.

Estimated population, 555.

Person making report, Wm. Duesler, mayor.

Health officer, Jas. McLaughlin.

Clerk, E. Hickerson.

1. \$15.00.

3. Health officer, \$1.00 per day in time of quarantine; clerk, no salary.

4. Not any.

6. Three or four.

8. No.

9. One.

10. One.

12. No.

13. No.

JEWETT, HARRISON COUNTY.

Estimated population, 800.

Person making report, S. V. Host, clerk.

Health officer Will Keyser.

Clerk, S. V. Host.

1. None.

3. Health officer and clerk, no salary.

4. One.

6. One.

8. No.

11. None.

12. No.

13. No.

JUNCTION CITY, PERRY COUNTY.

Estimated population, 700.

Person making report, I. A. Moody, health officer.

Health officer, I. A. Moody.

Clerk, J. N. Klingler.

1. About \$100.00.

2. None.

3. Health officer, \$30.00; clerk, \$20.00; sanitary policeman, \$1.50 per day of ten hours.

4. One.

5. No, only as the board thinks necessary.

6. Eight or ten.

7. None were brought.

8. Yes.

9. Six.

10. Six.

11. Each resident collects his garbage and hauls it to a dumping ground provided by council, by order of the board of health, at his own expense.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 10; membranous croup, 2. Total number of infectious diseases, 12.

KAMMS, CUYAHOGA COUNTY.

Estimated population, 2,500.

Person making report, W. L. Nichols, clerk.

Health officer, Chas. L. Wood.

Clerk, W. L. Nichols.

1. \$320.00.

2. None.

3. Health officer, \$100; clerk, \$25.00.

4. None. The marshal acts as sanitary police.

8. Yes.

9. One.

10. One.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 11; scarlet fever, 4; typhoid fever, 1; measles, 3. Total number of infectious diseases, 19.

KENT, PORTAGE COUNTY.

Estimated population, 4,600.

Person making report, W. W. Reed,
clerk.

Health officer, B. C. Newberry.

Clerk, W. W. Reed.

1. \$250.00.

2. None.

3. Health officer, \$200.00; clerk, \$1.00
per meeting.

4. None.

6. About ten.

7. No prosecutions.

8. No.

11. No system.

12. Yes.

13. Yes.

Cases of infectious diseases report-
ed: Smallpox, 4.

KILLBUCK, HOLMES COUNTY.

Estimated population, 370.

Person making report, Emil J. Hei-
nig, health officer.

Health officer, Emil J. Heinig.

Clerk, J. J. Day.

1. Not any.

2. None.

3. Health officer, nothing; clerk,
nothing.

4. None.

6. About ten.

8. None are reported unless the
health officer goes after them.

9. One.

10. None.

11. None.

12. No.

13. No.

Cases of infectious diseases report-
ed: Measles, 2. Total number of in-
fectious diseases, 2.

KIRBY, WYANDOT COUNTY.

Estimated population, 164.

Person making report, Dr. E. E.
Burns, health officer.

Health officer, Dr. E. E. Burns.

1. Not any.

2. Not any.

4. Not any.

6. One.

8. Yes.

9. None.

11. The council directs that each
family take care of its own garbage.

12. No.

13. No.

Cases of infectious diseases report-
ed: Measles, 5. Total number of in-
fectious diseases, 5.

KOSSUTH, AUGLAIZE COUNTY.

Estimated population, 175.

Person making report, Thos. J. Bar-
nett, mayor and health officer.

Health officer, Thomas J. Barnett.

Clerk, G. W. Evilsizor.

1. None.

2. None.

3. Health officer, nothing.

4. None.

5. No.

6. One.

7. None.

8. No.

9. One.

10. One.

11. Burn or bury it.

12. No.

13. No.

Cases of infectious diseases report-
ed: Scarlet fever, 1. Total number
of infectious diseases, 1.

LAGRANGE, LORAIN COUNTY.

Estimated population, 600.

Person making report, J. W. Lind-
sey, health officer.

Health officer, J. W. Lindsey.

Clerk, P. M. Johnson.

1. None.

3. No salaries.

4. None.

6. Four.

7. None.
8. No.
9. None.
11. No rules to my knowledge.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 9; typhoid fever, 1; whooping cough, estimated, 30; measles, estimated, 5. Total number of infectious diseases, 75.

LAKEWOOD, CUYAHOGA COUNTY.

Estimated population, 4,500.

Person making report, Dr. A. E. McClure, health officer.

Health officer, Dr. A. E. McClure.
Clerk, John French.

1. \$950.00.
2. \$300.00.
3. Health officer, \$150.00; clerk, \$100.00; sanitary policeman, fees.
4. One.
5. Yes.
6. Seven.
7. No.
8. No, not complete; would if compensated for it.
9. Thirty.
10. All, as far as possible.
11. None.
12. No.
13. Yes.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 6; scarlet fever, 13; typhoid fever, 10; whooping cough, 15; measles, 78. Total number of infectious diseases, 125.

LARUE, MARION COUNTY.

Estimated population, 997.

Person making report, G. A. L. Markwith, health officer.

- Health officer, G. A. L. Markwith.
1. \$35.00.
 2. None.

3. Health officer, \$30.00; clerk, none.
4. None.
6. Two.
7. None.
8. Just of deaths.
9. No record kept.
10. All, as far as could be.
11. Each party or property owner takes care of his own.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 2. Total number of infectious diseases, 2.

LATTY, PAULDING COUNTY.

Estimated population, 500.

Person making report, C. F. Troup, clerk.

Health officer, Robt. Higginbottom.
Clerk, C. F. Troup.

1. \$292.19.
2. All.
3. Health officer, none; clerk, \$5.00.
4. Marshal acts as sanitary police.
5. No.
6. Eighteen.
8. Has record book, but physicians do not report regularly.
9. Three.
10. Two.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 5. Total number of infectious diseases, 5.

LAURA, MIAMI COUNTY.

Estimated population, 475.

Person making report, Dr. S. P. Neff, health officer.

Health officer, Dr. S. P. Neff.
Clerk, Arthur Hess.

1. None.
2. None.

3. Health officer, \$10.00; clerk, \$6.00.
 4. There was one appointed on January 4, 1903. Our board would never appoint any until recent date, every-thing resting on the health officer.
 5. No; he is employed only until the present epidemic of smallpox is over.
 6. The board have regular monthly meetings. During epidemics they meet once or twice a week.
 7. No suits brought by board of health during the year.
 8. There is a record kept of such.
 9. Three.
 10. All.
 11. The garbage is hauled away to farms.
 12. No.
 13. No.
- Cases of infectious diseases reported: Smallpox, 15; scarlet fever, 3; typhoid fever, 1; whooping cough, 10; measles, 82. Total number of infectious diseases, 111.

LAURELVILLE, HOCKING COUNTY.

- Estimated population, 600.
 Person making report, Dr. W. D. Cain, health officer.
 Clerk, M. W. Alstadt.
 Health officer, Dr. W. D. Cain.
1. None.
 2. None.
 3. Health officer, \$12.00 per year.
 4. None.
 6. Four.
 7. None.
 8. Only partial.
 9. Four.
 10. Four.
 11. None; each family, under direction of health officer, removes same.
 12. No.
 13. No.
- Cases of infectious diseases reported: Membranous croup, 1; typhoid fever, 1; other infectious diseases, 1 (came under my personal observation). Total number of infectious diseases, 3.

- LEBANON, WARREN COUNTY.
 Estimated population, 3,000.
 Person making report, F. Ludlum, clerk.
 Health officer, Dr. G. M. Curry.
 Clerk, F. Ludlum.
1. \$150.77.
 2. \$110.77.
 3. Health officer, \$100.00; clerk, \$40.00.
 4. None.
 6. Nine.
 8. Yes.
 9. Six.
 10. All.
 11. None; hauled to a dump; night soil taken to country.
 12. No.
 13. No.
- Cases of infectious diseases reported: Smallpox, 8; scarlet fever, 2; typhoid fever, 33; measles, 15. Total number of infectious diseases, 58.

LEETONIA, COLUMBIANA COUNTY.

- Person making report, Dr. S. R. McCready, health officer.
 Health officer, Dr. S. R. McCready.
 Clerk, J. O. Hoffert.
1. \$230.00.
 2. \$50.00.
 3. Health officer, \$100.00; clerk, \$15.00; sanitary policeman, \$60.00.
 4. One.
 5. Yes.
 6. Eleven meetings.
 8. Of births and deaths only.
 7. No prosecutions.
 9. Thirteen.
 10. All were abated.
 11. No regular system. A place is provided to haul garbage. Everything possible is burned. Vegetables or anything decomposed or likely to decompose is burned.
 12. No.
 13. No.
- Cases of infectious diseases reported: Scarlet fever, 7; typhoid fever, 2;

other infectious diseases, 3. Total number of infectious diseases, 12.

1. None.
2. None.
3. Health officer, no salary fixed yet.
4. None.
7. None.
8. Yes.
9. None.
11. No garbage to dispose of yet.
12. No.
13. No.

LEXINGTON, RICHLAND COUNTY.

Estimated population, 448.

Person making report, H. H. Smith, health officer.

Health officer, H. H. Smith.

Clerk, W. H. Earhart.

1. \$273.94.
2. None.
3. Health officer, \$50.00; clerk, \$15.00.
4. None.
6. Four.
8. No.
9. Quite a number. No record.
10. All.
11. No particular system, but it is hauled away.
12. No.
13. No.

Cases of infectious diseases reported: Measles, 2. Total number of infectious diseases, 2.

LITHOPOLIS, FAIRFIELD COUNTY.

Person making report, E. E. Mason, clerk.

Health officer, H. W. Fars.

Clerk, E. E. Mason.

11. We had no meetings in 1902. Had disbanded about the latter part of 1901, being same members as mentioned here. Called a meeting March 2, 1903, and decided to hold same members over that we had before.

LOCKBOURNE, FRANKLIN COUNTY.

Estimated population, 375.

Person making report, David Bobst, health officer.

Health officer, David Bobst.

Clerk, Bert Kocher.

LOCKLAND, HAMILTON COUNTY.

Estimated population, 2,695.

Persons making report, C. W. Skillman and Wm. Stokes, health officer and clerk.

Health officer, C. W. Skillman.

Clerk, Wm. Stokes.

1. \$827.68, not including salaries of health officer and clerk.
2. \$647.38.
3. Health officer, \$150.00; clerk, \$100.00; sanitary policeman, \$1.50 per day when employed.
4. Only when necessity requires.
5. No.
6. Seventeen.

7. No suits for the violation of health laws. One case, where property owner was ordered to clean vault, was disregarded, after notifying the owner, a period of five days being allowed, and no action taken, a resolution of the board was passed having work done, and notification was sent to county auditor to assess cost of same against the property.

8. Yes.
9. Twenty-eight.
10. All.

11. The ashes are collected three days each week, and garbage three days. All ashes and garbage are kept separate. Ashes are hauled to a dump, garbage hauled outside of village and fed to hogs.

12. No.
13. No.

Cases of infectious disease report-

ed: Smallpox, 25; diphtheria, 4; scarlet fever, 15; typhoid fever, 2; whooping cough, 1; measles, 31. Total number of infectious diseases, 78.

LODI, MEDINA COUNTY.

Estimated population, 1,100.

Person making report, H. Selders, health officer.

Health officer, Henry Selders.

Clerk, Chas. Rawland.

1. \$20.50.

2. None.

3. Health officer, fees.

4. None.

6. Twelve.

8. No.

10. Twelve.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1.

LONDON, MADISON COUNTY.

Estimated population, 4,000.

Person making report, Dr. M. Vance, health officer.

Health officer and clerk, Dr. M. Vance.

1. About \$8.00.

2. Nearly \$6.00.

3. Clerk, \$120.00; sanitary policeman, \$120.00.

4. One in summer.

5. Not this year, heretofore yes.

6. Eighteen.

7. Not cleaning vault, fined. Not removing hogs, fined.

8. Not of births or deaths; contagious diseases, yes.

9. No account kept.

10. No account kept.

11. The town wagon in daytime, vaults cleaned at night.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; typhoid fever, 5; whooping cough, not reported; measles

15. Total number of infectious diseases, 22.

LOUDONVILLE, ASHLAND COUNTY.

Estimated population, 1,600.

Person making report, M. R. Walter, secretary.

Health officer, Wm. Conrad.

Clerk, M. R. Walter.

1. About \$110.00.

2. None.

3. Health officer, \$50.00; clerk, \$25.00.

4. Only the health officer who is also village marshal.

6. Ten; but there were many meetings of the different committees, especially quarantine and water supply committees.

8. Births have never been reported, deaths and infectious diseases are reported.

9. Eleven.

10. All.

11. Dumping ground at eastern limit of village, all decomposable matter must be buried at the dumping ground.

12. Have a milk committee.

13. Board requires all who sell milk to register with the health officer.

Cases of infectious diseases reported: Membranous croup, 1; typhoid fever, 16; measles, 115. Total number of infectious diseases, 132.

LOUISVILLE, STARK COUNTY.

Estimated population, 1,800.

Person making report, F. W. Schilling, health officer.

Health officer, F. W. Schilling.

Clerk, M. O. Sherer.

1. \$523.98.
 2. \$448.58.
 3. Health officer, \$50.00; clerk, \$25.00; sanitary policeman, 20c per hour.
 4. One.
 5. Yes.
 6. Five.
 8. Deaths only.
 9. Nine.
 10. All.
 11. Have none.
 12. No.
 13. No.
- Cases of infectious diseases reported: No record.
-

LOWELL, WASHINGTON COUNTY.

- Estimated population, 350.
 Person making report, A. J. Thompson, health officer.
 Health officer, A. J. Thompson.
 Clerk, J. W. Brabham.
1. None.
 3. Health officer, \$25.00.
 4. None.
 6. Twelve.
 8. Yes.
 9. None.
 10. None.
 11. No system, it is disposed of outside of village limits.
 12. No.
 13. No.
-

LOWER SALEM, WASHINGTON COUNTY.

- Person making report, Aaron Hartshorn, health officer.
 Health officer, Aaron Hartshorn.
 Clerk, Herman Mullbach.
1. None.
 3. Health officer, nothing; clerk, \$10.00.
 6. None.
 8. No.

9. None.
 11. Bury it.
-

LUCAS, RICHLAND COUNTY.

- Estimated population, 306.
 Person making report, Dr. J. A. Yoder, health officer.
 Health officer, J. A. Yoder.
 Clerk, W. O. Collins.
4. None.
 6. One.
 8. Of infectious and contagious diseases only.
 9. None.
 12. No.
 13. No.
-

LYNCHBURG, HIGHLAND COUNTY.

- Estimated population, 907.
 Person making report, M. V. Nolder, health officer.
 Health officer, M. V. Nolder.
 Clerk, W. A. Saylor.
1. \$550.00.
 2. \$500.00
 3. Health officer, \$50.00; clerk, \$20.00.
 4. None.
 6. Twelve regular meetings and one or two extra each week during the smallpox.
 8. Keep record of deaths and contagious diseases.
 9. About 75.
 10. About 75.
 11. When we find garbage, if the owner of the property don't haul it away, we haul it away at expense of the owner of the property.
 12. No.
 13. No.
- Cases of infectious diseases reported: Smallpox, 24; typhoid fever, 1; whooping cough, 1. Total number of infectious diseases, 26.

MCARTHUR, VINTON COUNTY.

Estimated population, 944.

Person making report, George W. Partlow, health officer.

Health officer, George W. Partlow.

3. Health officer, \$50.00 per year.

8. No.

9. None.

12. No.

13. No.

6. Fourteen.

8. Yes.

9. None.

11. There is no system; it is carted and dumped at different places inside and outside the corporation limits.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 31; typhoid fever, 5; Total number of infectious diseases, 36.

MCCOMB, HANCOCK COUNTY.

Estimated population, 1,270.

Person making report, Scott W. Preble, health officer.

Health officer and clerk, Scott W. Preble.

1. \$1.47.

2. None.

3. Health officer, \$40.00 per year; sanitary policeman, \$5.00 per month.

4. One.

5. No, about seven months.

6. Seven.

7. None.

8. Deaths only.

9. None.

11. Collected in sealed casks and hauled to dumping ground, about two miles, and buried.

12. No.

13. No.

MADISONVILLE, HAMILTON COUNTY.

Estimated population, 4,000.

Person making report, Dr. C. L. Metz, health officer.

Health officer, Dr. C. L. Metz.

Clerk, John A. Conant.

1. \$141.63.

2. None.

3. Health officer, \$66.66; clerk, \$33.33; sanitary policeman, paid fees for placarding, disinfecting and guard duty.

4. One.

5. Only at the pleasure of the board.

6. Fifty-two regular meetings; first Monday in month, extra meetings may be called by health officer when necessary.

7. None.

8. Yes.

9. Ten.

10. Ten.

11. No public system; it is collected by private parties three times a week during warm weather and once a week during winter.

12. No health officer inspects the milk about every three months and also the dairies.

13. No.

Cases of infectious diseases reported: Diphtheria, 2; membranous croup, 1; scarlet fever, 9; typhoid fever 7; whooping cough, 20; measles,

MCCONNELSVILLE, MORGAN COUNTY.

Estimated population, 2,000.

Person making report, William Dille, health officer.

Health officer, William Dille.

Clerk, M. E. Danford.

1. \$100.00.

2. Not any.

3. Health officer, \$40.00; clerk, \$10.00; sanitary policeman, \$12.00.

4. One.

5. No.

65; chickenpox, 5. Total number of infectious diseases, 109.

MAGNOLIA, STARK COUNTY.

Estimated population, 950.

Person making report, Solon Zentz, clerk.

Health officer, L. Scheidager.

Clerk, Solon Zentz.

1. \$15.00.

2. None.

3. Health officer, nothing; clerk, \$8.00.

6. 20.

7. Our local butcher was arrested by order or affidavit of health officer for butchering and causing offensive smell in corporation against ordinance. Party was fined one dollar and costs.

9. Five.

10. Five.

11. Street commissioner hauls it out.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 2.

MALINTA, HENRY COUNTY.

Estimated population, 375.

Person making report, Chas. Spangler, health officer.

Health officer, Chas. Spangler.

Clerk, J. F. Parritt.

1. \$18.00.

2. None.

3. Health officer, \$1.50 per day on duty; \$3.00 for disinfecting, clerk nothing.

4. None.

6. One on the third Monday of each month.

7. None.

8. No.

9. Three.

10. Three.

11. By burying and using lime on same.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 1. Total number of infectious diseases, 4.

MALVERN, CARROLL COUNTY.

Estimated population, 709.

Person making report, Dr. J. A. Rhiel, health officer.

Health officer, Dr. J. A. Rhiel.

Clerk, H. V. Buel.

1. About \$1,000.00.

2. About \$980.00.

3. Health officer, \$15.00.

4. None.

6. We meet first Friday of each month.

7. The board had no trouble in enforcing rules—no litigation.

8. No.

9. None.

11. Each household cares for its own garbage. We have no system only each person keeps his own premises clean; the council visits the back streets, yards and alleys, and reports if conditions are not sanitary; notice is then served upon the proper person.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 7; typhoid fever, 2. Total number of infectious diseases, 9.

MANCHESTER, ADAMS COUNTY.

Estimated population, 2,000.

Person making report, J. D. Jordan, health officer.

Health officer, J. D. Jordan.

Clerk, Henry Bradford.

3. Health officer, \$52.00 per year; clerk, \$10.00.

4. None.
6. Twelve.
7. None.
8. Yes.
9. About twenty.
10. All.
11. Taken out of corporation and burned if necessary.

12. None.

13. No.

Cases of infectious diseases reported: Scarlet fever, 2; typhoid fever, 2; whooping cough, 1. Total number of infectious diseases, 5.

MASON, WARREN COUNTY.

Estimated population, 629.

Person making report, Harry C. Keever, clerk.

Health officer Dr. C. T. Hall.

Clerk, Harry C. Keever.

1. \$20.00.
2. Nothing.
3. Health officer, \$10.00; clerk, \$10.00.
4. None.
6. Five or six.
8. Of deaths only.
12. No.
13. No.

MAUMEE, LUCAS COUNTY.

Estimated population, 2,000.

Person making report, J. E. Wilcox, clerk.

Health officer, P. Hartman.

Clerk, J. E. Wilcox.

1. \$75.00.
2. None.
3. Health officer, \$5.00 per month; clerk, \$10.00 per year.
4. None.
6. Six.
8. No.
9. Two.
10. Two.

12. No.

13. No.

Cases of infectious diseases reported. Scarlet fever, 2; typhoid fever, 2. Total number of infectious diseases, 2.

MECHANICSBURG, CHAMPAIGN COUNTY.

Estimated population, 1,900.

Person making report, Dr. J. C. Hathaway, health officer.

Health officer and clerk, Dr. J. C. Hathaway.

1. \$50.00.
2. None.
3. Health officer and clerk, \$40.00.
4. None.
6. Ten.
7. No suit.
8. Yes.
9. Eighty-six.
10. Eighty.
11. Man and dumping farm.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 6; typhoid fever, 4; measles, 7. Total number of infectious diseases, 17.

MEDINA, MEDINIA COUNTY.

Estimated population, 2,200.

Name of person making report, F. L. Harding, health officer.

F. L. Harding, health officer; J. F. Styer, clerk.

1. One hundred and fifty dollars.
2. None.
3. Health officer, \$90; clerk, \$15.
4. None.
6. Ten.
7. None.
8. No.
9. Ten to fifteen.
10. All of them.

11. Hauled out of town in tight tanks.

12. No.

13. No.

Number of infectious diseases: Diphtheria, 10; membranous croup, 12; typhoid fever, 2. Total number of infectious diseases, 24.

MELROSE, PAULDING COUNTY.

Estimated population, 450.

Person making report, Thomas J. Meyers, health officer.

Health officer, Thomas J. Meyers.
Clerk, W. E. Endsley.

1. \$2.00.

2. None.

6. Twelve.

Cases of infectious diseases reported: Whooping cough, 75. Total number infectious diseases, 75.

MENTOR, LAKE COUNTY.

Estimated population, 800.

Person making report, Dr. J. W. Lowe, health officer.

Health officer, J. W. Lowe, M. D.

1. None.

2. None.

3. Health officer, \$10.00.

4. None.

6. None.

7. None.

8. Yes.

9. One, a slaughter house.

10. One.

11. We have no system.

12. No, the health officer attends to this.

13. No.

Cases of infectious diseases reported: scarlet fever 10; typhoid fever, 2; chickenpox, 15. Total number of infectious diseases, 27.

MIAMISBURG, MONTGOMERY COUNTY.

Estimated population, 5,000.

Person making report, Dr. A. H. Blossom, health officer.

Health officer, Dr. A. H. Blossom.

Clerk, W. S. Bookwalter.

1. \$915.95.

2. \$500.00.

3. Health officer, \$100.00; clerk, \$60.00; sanitary policeman, \$300.00.

4. One.

5. Yes.

6. Twenty.

8. Births and deaths only.

9. 175.

10. All.

11. Employ a man to collect and dispose of same by removing outside of corporation and burning it

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 26; diphtheria, 2; scarlet fever, 4; whooping cough, 1; Total number of infectious diseases, 33.

MIDDLEBURG, LOGAN COUNTY.

Estimated population, 400.

Person making report, E. B. Eyer, mayor.

Health officer, C. C. Heath.

Clerk, L. L. Irvin.

1. \$5.00.

2. None.

3. Health officer, \$5.00; clerk, \$15.00, including corporation services.

4. None.

6. Three.

8. Have not been kept.

9. Two.

10. Two.

11. Has been dumped on dump-ground.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever,

2; measles, 2; Total number of infectious diseases, 7.

MIDDLEPORT, MEIGS COUNTY.

Estimated population, 3,000.

Person making report, Dr. David Sisson, health officer.

Health officer, Dr. David Sisson.

Clerk, E. F. Cartwright.

1. \$315.00; exclusive of salaries of health officer and clerk.

2. \$312.00.

3. Health officer, \$100.00; clerk, \$25.00; sanitary policeman, \$1.25 per day.

4. None regularly.

6. Five.

8. Yes, except births.

9. Four.

10. Eight.

11. None whatever.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 7. Total number of infectious diseases, 7.

MILAN, ERIE COUNTY.

Estimated population, 650.

Person making report, Darwin Fay, clerk.

Health officer, Fred Coleman.

Clerk, Darwin Fay.

1. \$143.11.

2. \$123.40. Money spent in quarantining against surrounding territory.

3. Health officer, 25 cents per hour for actual service; clerk, \$1.00 for each meeting and record; sanitary policeman, \$1.50 per day while in actual service.

4. One beside health officer.

5. No.

6. Ten.

8. No.

9. None.

10. None.

11. Do not have any.

12. No.

13. No.

MILFORD CENTER, UNION COUNTY.

Estimated population, 800.

Person making report, Thomas Connor, health officer.

Health officer, Thomas Connor.

Clerk, C. F. Monroe.

3. Health officer, \$20.00; clerk, 50 cents each meeting.

4. None.

6. One.

7. No prosecutions.

8. No.

9. Three.

10. Fourteen. Nuisances are not reported, have to hunt them up.

11. No regular system; each family required to dispose of its own, either by carting off or burying.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 4; scarlet fever, 3. Total number infectious diseases, 7.

MILLER CITY, PUTMAN COUNTY.

Estimated population, 160.

Person making report, F. M. Miley, president.

Health officer, F. M. Miley.

Clerk, Geo. H. Rigel.

1. None.

3. No salaries.

6. None.

8. No.

9. None.

10. None.

11. None.

12. No.

13. No.

MILLBURY, WOOD COUNTY.

Estimated population, 300.

Person making report, C. M. Deibert,
health officer.

Health officer, C. M. Deibert.

Clerk, H. D. Grove.

1. About \$25.00.
2. None.
3. Paid for what work is done, no salary.
4. None.
6. Three.
8. No.
9. None.
10. None.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 1. Total number of infectious diseases, 1.

MILLERSBURG, HOLMES COUNTY.

Estimated population, 1,998.

Person making report, Chas. A. Estill, health officer.

Health officer, Chas. A. Estill.

Clerk, C. D. Parkinson.

1. None.
2. None.
3. No salaries.
4. Marshal is ex-officio sanitary policeman.
6. Three.
7. No suits brought.
8. No.
9. Seventeen.
10. About all.
11. No system. The council imposes on marshal the duty of seeing that streets and alleys are kept free from nuisances and garbage; and where same exists, property owner is required to remove same.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1.

MINERAL RIDGE, TRUMBULL COUNTY.

Estimated population, 1,150.

Person making report, Dr. J. M. Elder, health officer.

Health officer, Dr. J. M. Elder.

Clerk, J. F. Pearce.

1. \$2,080.00.
2. \$2,000.00.
3. Health officer, \$50.00; clerk, \$15.00; sanitary policeman, \$15.00.
4. One.
5. Yes.
6. Thirty.
7. None.
8. Yes.
9. Thirty.
10. Thirty.
11. None.
12. No.
13. Yes.

Cases of infectious diseases reported: Smallpox, 14; scarlet fever, 4; typhoid fever, 14; whooping cough, 40; measles, 3. Total number of infectious diseases, 75.

MINERAL CITY, TUSCARAWAS COUNTY.

Estimated population, 1,400.

Person making report, W. M. Tracy, secretary.

Health officer, Dr. C. E. Brothers.

Clerk, W. M. Tracy.

1. \$307.31.
2. Whole amount.
3. No salaries. We employ guards, temporarily only, at \$2.00 per day.
6. Six.
7. No prosecutions.
8. No, only as appears in the minutes of cases coming before it.

9. None.
10. None.
11. Street commissioner is required to remove it.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1.

MINERVA, STARK AND CARROLL COUNTIES.

Estimated population, 1,200.

Person making report, T. I. Perdue, secretary.

Health officer, J. C. Young.

Clerk, T. I. Perdue.

1. About \$30.00.
2. \$30.00.
3. Health officer, \$20.00 per year; Clerk, \$12.00 per year.
4. None.
6. Eight.
8. No record of births, only deaths and infectious and contagious diseases.
9. Five.
10. Five.
11. None,
12. No.
13. No.

MINSTER, AUGLAIZE COUNTY.

Estimated population, 1,465.

Person making report, Christian Meyer, health officer.

4. None.
6. No meeting.
7. No suit.
8. Not during the last year.
9. Two.
10. Two.
11. None.
12. No.
13. No.

MORROW, WARREN COUNTY.

Estimated population, 900.

Person making report, E. Wilkerson, health officer.

Health officer, E. Wilkerson.

Clerk, E. G. Wilson.

1. \$18.00.
 3. Health officer, \$24.00 per year.
 6. None.
 8. Deaths, infectious and contagious diseases only.
 9. One.
 10. One.
 11. Garbage removed once a week in winter and twice a week in summer.
 12. No.
 13. No.
- Cases of contagious diseases reported: Scarlet fever, 4; typhoid fever, 2. Total number of infectious diseases, 6.

MT. CORY, HANCOCK COUNTY.

Estimated population, 350.

Person making report, Jacob Doty, health officer.

Health officer, Jacob Doty.

Clerk, Amos Bodkin.

1. None.
3. No salaries.
4. None.
6. One.
8. Yes.
9. None.
10. None.
11. Burying.
12. No.
13. No.

MT. HEALTHY, HAMILTON COUNTY.

Estimated population, 1,352.

Person making report, Dr. Jacob Ferris, health officer

Health officer, Dr. Jacob Ferris.

Clerk, Owen Smith.

1. \$80.00.
2. None.
3. Health officer, \$50.00; clerk, \$30.00.
4. None.
6. Seven.
7. None.
8. Yes.
9. Six.
10. Six.
11. Each householder takes care of his own garbage, it is satisfactorily done.
12. No.
13. No.

Cases of infectious diseases reported: Whooping cough, 23; measles, 37. Total number of infectious diseases, 60.

4. None except city marshal.
5. Yes.
6. Five.
7. Two arrests were made for persons ignoring orders of board to abate nuisances.
8. No.
9. 256.
10. 254.
11. No system adopted. City owns a public dumping ground about one mile from town where garbage may be hauled by private individuals.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 1; typhoid fever, 3; measles, 20. Total number of infectious diseases, 26.

MT. PLEASANT, JEFFERSON COUNTY.

Person making report, Dr. T. P. Gorsuch, health officer.

Health officer, Dr. T. P. Gorsuch.

Clerk, David S. Brooks.

1. \$56.00.
2. \$25.00.
3. Health officer, \$2.00 per ray; clerk, \$15.00 per year.
6. One.

Cases of infectious diseases reported: Smallpox, 1; membranous croup, 1. Total number of infectious diseases, 2.

MT. STERLING, MADISON COUNTY.

Estimated population, 1,000.

Person making report, Dr. C. T. Gallagher, health officer.

Health officer, Dr. Chas. T. Gallagher.

Clerk, D. B. Saint.

1. \$2.50, outside of salaries.
2. None.
3. Health officer, \$25.00 per year; clerk, none; sanitary policeman, \$10.00 per year.

MT. WASHINGTON, HAMILTON COUNTY.

Estimated population, 791.

Person making report, James E. Cutler, clerk.

Health officer, Dr. W. C. Langdon.

Clerk, J. E. Cutler.

1. \$63.00.
2. \$13.00.
3. Health officer, \$25.00 per year; clerk, \$25.00 per year.
4. Only when one is needed.
5. No.
6. Three.
8. Yes.
9. None.
11. Have none.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 3; scarlet fever, 6; typhoid fever, 5. Total number infectious diseases, 16.

MURRAY CITY, HOCKING COUNTY.

Estimated population, 1,500.

Person making report, T. J. Dillinger, health officer.

Health officer, T. J. Dillinger.

Clerk, John Dolan .

1. \$100.00.
2. None.
3. Health officer, \$5.00 per month; clerk, nothing.
4. None.
6. Six.
7. We had no prosecutions of any kind.
8. Yes, as nearly as possibly.
9. Twenty-five.
10. All that were ordered to be abated.
11. We have no definite system, but it is hauled to a dump or buried.
12. No.
13. No. Very little milk is sold in our town.

Cases of infectious diseases reported: Diphtheria, 2; membranous ver, 4. Total number of infectious diseases, 38.

NAPOLEON, HENRY COUNTY.

Estimated population, 4,000.

Person making report, D. H. Hancock, health officer.

Health officer and clerk, D. H. Hancock.

1. Fumigating and rent for dumping ground, \$48.40.
2. None.
3. Health officer, \$20.00 per month, including clerk.
4. None.
6. Seven.
8. Yes, except births.
9. 213.
10. 191.
11. Garbage deposited on a dump ground outside of the corporation and near no residence.
12. No.
13. No.

Cases of infectious diseases re-

ported: Diphtheria, 3; scarlet fever, 11; typhoid fever, 6; whooping cough, 1; measles, 3. Total number of infectious diseases, 24.

NAVARRE, STARK COUNTY.

Estimated population, 975 .

Person making report, John Bailiss, health officer.

Health officer, John Bailiss.

Clerk, Kern Ackerman.

1. \$33.75.
2. None.
3. Health officer, \$25.00; clerk, \$20.00.
4. None.
6. Every month.
7. Have had no occasions to prosecute on any case.
8. Yes.
9. Ten.
10. All.
11. Each householder disposes of his own.
12. No.
13. Not at the present time.

Cases of infectious diseases reported: Typhoid fever, 3 cases, none fatal.

NEVILLE, CLERMONT COUNTY.

Estimated population, 300.

Person making report, Dr. A. Franco Joseph, health officer.

Health officer, Dr. A. Franco Joseph. Clerk, C. H. Seip.

1. None.
2. Not any.
3. Health officer, \$12.00 per annum.
4. None.
6. Irregular.
7. None.
8. Yes, it will.
9. None.
11. No system.
12. No.
13. No.

Cases of infectious disease reported: Scarlet fever, 1; typhoid fever, 1. Total number of infectious diseases, 2.

NEW BREMEN, AUGLAIZE COUNTY.

Estimated population, 1,338.

Person making report, Dr. M. S. Ekermeyer, health officer.

Health officer and clerk, M. S. Ekermeyer.

1. \$25.00 for salaries.

2. None.

3. Health officer, \$15.00; clerk, \$5.00, sanitary policeman, 40 cents for serving notices.

4. One.

5. Appointed by the board for one year.

6. Six.

7. None.

8. Only births and deaths.

9. Two.

10. Two.

11. None. We dispose of it by having the street commissioner to order where the garbage shall be dumped. It is generally burned or covered with earth.

12. No.

13. No.

Cases of infectious diseases reported: Whooping cough, 1. Total number of infectious diseases, 1.

NEWCOMERSTOWN, TUSCARAWAS COUNTY.

Estimated population, 2,500.

Person making report, Wm. Tidrick, health officer.

Health officer, Wm. Tidrick.

Clerk, H. G. Muchelnaus.

1. \$157.31.

2. None.

3. Health officer, \$75.00 per year; clerk, \$75.00 per year.

4. None.

6. Twelve.

8. It does.

9. Fifty.

10. Fifty.

11. It is deposited in barrels and hauled to a place outside the corporation, rented by the city authorities for that purpose.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 7; typhoid fever, 27; measles, 1. Total number of infectious diseases, 35.

NEW CONCORD, MUSKINGUM COUNTY.

Estimated population, 800.

Person making report, Dr. Henry McCreary, health officer.

Health officer, Dr. Henry McCreary.

Clerk, Geo. C. Watson.

1. \$11.55.

2. None.

3. Health officer, \$3.00 per day while on duty.

4. None.

6. Six.

8. No.

11. It is hauled away by private parties or by the street commissioner.

12. No.

13. No.

Cases of infectious diseases reported; Smallpox, 1.

NEW HOLLAND, PICKAWAY COUNTY.

Estimated population, 1,000.

Person making report, Jos. P. VanVickle, president.

Health officer, J. Q. Shepherd.

Clerk, E. L. Gooley.

1. \$25.00.

2. None.
3. Health officer, \$20.00; clerk, \$5.00.
4. None.
6. Four.
8. Yes.
9. One.
10. One.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 4; whooping cough, 4. Total number of infectious diseases, 8.

NEW LEXINGTON, PERRY COUNTY.

Estimated population, 2,000.

Person making report, J. W. Holden, health officer.

Health officer, J. W. Holden.

Clerk, Ross Rissler.

1. \$75.00.
2. None.
3. Health officer, \$42.00; clerk, \$5.00 per year.
4. None.
6. Six.
7. None.
8. No.
9. Twenty-four.
10. Twenty-four.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever, 3; typhoid fever, 12; whooping cough, 11. Total number of infectious diseases, 27.

NEW LONDON, HURON COUNTY.

Estimated population, 1,500.

Person making report, A. M. Turner, health officer.

Health officer, A. M. Turner.

Clerk, C. B. Post.

1. \$171.31.
2. \$29.76.

3. Health officer, \$5.00 per month; sanitary policeman, \$1.25 per day.

4. One.
5. Only when we have use for them.
6. Twelve.
8. Yes, except births.
9. 130.
10. 130.
11. Load it in wagon, take it outside

of corporation.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 3; typhoid fever, 4; measles, 2. Total number of infectious diseases, 9.

NEW RIEGEL, SENECA COUNTY.

Estimated population, 300.

Person making report, Anthony Imber, councilman.

Health officer, Anthony Imber.

Clerk, A. Alwise.

1. \$15.00.
3. Health officer, \$10.00.
6. None; Council meets twice a month.
8. As far as reported.
9. One.
12. None.
13. None.

Cases of infectious diseases reported: Typhoid fever, 13.

NEW RICHMOND, CLERMONT COUNTY.

Estimated population, 2,000.

Person making report, Dr. J. A. Windsor, health officer.

Health officer, Dr. J. A. Windsor.

Clerk, C. O. Ketchum.

1. \$500.00.
2. \$350.00.
3. Health officer, \$50.00 per year; clerk, \$12.00 per year; sanitary policeman gets pay for work done.
4. One.
5. Yes.
6. Six.

7. None.
8. Yes.
9. Twenty-eight.
10. Twenty-eight.
11. No regular system, but have a regular dump.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 23; scarlet fever, 8; typhoid fever, 3; measles, 3. Total number of infectious diseases, 37.

NEW WASHINGTON, CRAWFORD COUNTY.

Estimated population, 825.

Person making report, Dr. Burt R. Miller, health officer.

Health officer, Dr. Burt R. Miller.

Clerk, Henry Becker.

1. \$6.00.
2. None.
3. Health officer, \$2.00 for disinfecting a house; **clerk, none.**
4. None.
6. Four.
7. None.
8. Of all except births.
9. None.
10. None.
11. Street commissioner collects garbage.
12. None.
13. None.

Cases of infectious diseases reported: Scarlet fever, 3; typhoid fever, 4. Total number of infectious diseases, 7.

NEW WATERFORD, COLUMBIANA COUNTY.

Estimated population, 700.

Person making report, Sam C. Scott, clerk

Health officer, A. J. Hayes.

Clerk, Sam C. Scott.

1. \$63.50.
2. None.
3. Health officer, 20 cents per hour for time employed; clerk, \$50 per year.
4. None.
6. Eight.
7. None.
8. Yes.
9. Two.
10. Two.
12. No.
13. No.

Cases of infectious diseases reported: Measles, 1. Total number infectious diseases, 1.

NORTH AMHERST, LORAIN COUNTY.

Estimated population, 1,800.

Person making report, Dr. H. L. Hall, health officer.

Health officer, Dr. H. L. Hall.

2. None.
3. Health officer, \$50.00 per year.
4. None.
8. No.
9. No record.
10. No record.
12. No.
13. No.

Cases of infectious diseases reported: No permanent record.

NORTH BALTIMORE, WOOD COUNTY.

Estimated population, 3,600.

Person making report, Dr. J. W. Stoner, health officer.

Health officer and clerk, Dr. J. W. Stoner.

1. About \$300.00.
2. About \$60.00.
3. Health officer and clerk, \$24.00; sanitary policeman, \$200.00.
4. One.

5. Yes.
6. Four.
7. No prosecutions.
8. Only of deaths.
9. No record.
10. All that were reported.

11. Garbage is hauled out of town a half mile and dumped in an abandoned brick yard excavation at expense of owners by persons employed by them.

12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 8; diphtheria, 2; scarlet fever, 15; typhoid fever, 12; measles, 25. Total number of infectious diseases, 62.

NORTH LEWISBURG, CHAMPAIGN COUNTY.

Estimated population, 866.

Person making report, G. L. Freeman, health officer.

Health officer, G. L. Freeman.

Clerk, V. B. Guy.

NORTH LINNDALE, CUYAHOGA COUNTY.

Estimated population, 600.

Person making report, Hugh Gearity, health officer.

Health officer, Hugh Gearity.

3. Health officer, \$25.00 year.

4. None.
6. Twelve.
8. Yes.
9. One.
10. None.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 3; diphtheria, 1;

membranous croup, 1. Total number of infectious diseases, 5.

NORTH ROBINSON, CRAWFORD COUNTY.

Estimated population, 200.

Person making report, Jas. E. Morton, health officer.

1. Not any.
3. Health officer, 50 cents per month.
4. None.

NOTTINGHAM, CUYAHOGA COUNTY.

Estimated population, 800.

Person making report, Dr. Wm. O. Jenks, health officer.

Health officer, Dr. W. O. Jenks.

Clerk, J. R. Emerich.

1. \$158.00.
2. Nothing.
3. Health officer, nothing; clerk, \$8.00; sanitary policeman, \$2.00 per day.

4. One.

5. Yes, and paid \$2.00 per day for time actually employed.

6. About eight.
7. None brought.
8. Yes.
9. Seven.
10. Seven.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 3; scarlet fever, 6; typhoid fever, 1; measles, 10. Total number of infectious diseases, 20.

OAKLEY, HAMILTON COUNTY.

Estimated population, 550.

Person making report, W. L. Milner, health officer.

Health officer and clerk, W. L. Milner.

1. None.
3. Health officer, nothing; clerk, nothing; sanitary policeman, not determined.
4. One.
5. Yes.
6. One.
8. Partial record; can't make people do anything here.
9. None.
10. None.
12. No.
13. No.

OBERLIN, LORAIN COUNTY.

Estimated population, 4,082.

Person making report, E. L. Burge, health officer.

Health officer, E. L. Burge.

Clerk, A. S. Root.

1. \$50.00.
2. \$10.00.
3. Health officer, none; clerk, none.
4. None.
6. Eight.
7. None.
8. Yes.
9. Ten.
10. Ten.
11. None. Private collectors.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 1; membranous croup, 1; scarlet fever, 15; typhoid fever, 9; measles, 25. Total number of infectious diseases, 51.

ORRVILLE, WAYNE COUNTY.

Estimated population, 2,000.

Person making report, Dr. A. A. Brooks, health officer.

Health officer, Dr. A. A. Brooks.

Clerk, J. B. Heffelman.

1. \$155.50.

2. Not any.

3. Health officer, \$50.00; clerk, nothing; sanitary policeman, \$50.00.

4. One.
5. Yes.
6. Four.
7. No suits brought.
8. Yes.
9. Twenty-seven.
10. Twenty-seven.
11. No provision made for disposal of garbage.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 1; typhoid fever, 8. Total number of infectious diseases, 10.

OSBORN, GREENE COUNTY.

Estimated population, 1,000.

Health officer, Ora Beakler.

1. Can't say.
2. None.
3. Health officer, \$5.00 per month.
4. One.
5. Yes.
6. Two.
8. No.
9. Can't say.
10. None.
11. By gathering the same and dumping it in a hole along in the bottoms.
12. No.
13. No.

OTTAWA, PUTNAM COUNTY.

Estimated population, 2,500.

Person making report, Dr. E. L. Tupper, health officer.

Health officer, Dr. E. L. Tupper.

Clerk, W. H. West.

1. About \$600.00.
2. \$500.00.
3. Health officer, \$75.00; clerk, \$12.00; sanitary policeman, \$72.00.

4. One.
5. Yes.
6. Twenty-three.
8. Yes.
9. Twenty.
10. All.
11. Tight barrels; burned.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 7; membranous croup, 5; scarlet fever, 3; typhoid fever, 8; whooping cough, 5; measles, 3. Total number of infectious diseases, 36.

OTTOVILLE, PUTNAM COUNTY.

Estimated population, 400.

Person making report, Dr. J. F. Ockuly.

Health officer, Dr. J. F. Ockuly.

1. None.
3. Health officer, nothing.
4. None.
7. None.
8. Yes.
9. None.
11. Have not adopted a system.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 3; measles, 2. Total number of infectious diseases, 5.

OWENSVILLE, CLERMONT COUNTY.

Estimated population, about 300.

Person making report, Dr. G. G. Rutledge, health officer.

Health officer, Dr. G. G. Rutledge.

1. None.
3. Health officer, nothing.
4. None.
6. None.
7. None.

8. No.
9. None.
10. None.
11. None.
12. No.
13. No.

OXFORD, BUTLER COUNTY.

Estimated population, 2,300.

Person making report, W. E. Calohan, health officer.

1. \$150.00.
2. \$60.00.
3. Health officer, \$10.00 per month; clerk, \$4.00 per month.
4. One.
5. Yes.
6. Five.
7. None.
8. Yes.
9. Twenty.
10. All.
11. Carried out in barrels.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox 1; scarlet fever, 10; typhoid fever, 3; measles, 30; other infectious diseases, 8. Total number of infectious diseases, 52.

PERRYSBURG, WOOD COUNTY.

Estimated population, 1,766.

Person making report, C. H. Van Norman, clerk.

Health officer, Dr. H. R. Roether.

Clerk, C. H. Van Norman.

2. None.
3. Clerk, \$25.00 per year.
4. One.
6. Fifteen.
7. None.
8. No.
9. Three.
10. Three.
11. None.

12. No.
13. No.

Cases of infectious diseases reported: None.

PERRYSVILLE, ASHLAND COUNTY.

- Estimated population, 500.
Person making report, J. A. Chapel, clerk.
Health officer, D. W. Webster.
Clerk, J. A. Chapel.
1. About \$25.00
2. None.
3. Health officer, \$10.00 per year; clerk, \$5.00 per year.
6. Eight.
8. Yes.
9. Eight.
10. All.
11. Property owner takes care of it, then it is collected and burned.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 7; typhoid fever, 1. Total number of infectious diseases, 8.

PIKETON, PIKE COUNTY.

- Estimated population, 625.
Person making report, S. H. Cutler, health officer.
Health officer, S. H. Cutler.
Clerk, Frank Spurck.
1. \$38.15.
2. None.
3. Health officer, \$12.00; clerk, \$12.00.
4. None.
6. Nine.
8. No.
9. Two.
10. Two.
11. We have no system. Each one is supposed to keep his own premises clean, and if not he is looked after by health officer.
12. No.
13. No.

PIONEER, WILLIAMS COUNTY.

- Estimated population, 603.
Person making report, Benjamin Hosmer, health officer.
Health officer, Benjamin Hosmer.
Clerk, F. W. Hadley.
1. \$10.00.
2. None.
3. Health officer \$5.00; clerk, \$5.00.
4. None.
6. Twelve.
7. None.
8. Yes.
9. Three.
10. All.
11. Put in compost heaps and used as fertilizer.
12. No.
13. No.

Cases of infectious diseases reported: Scarlet fever, 1; measles, 1. Total number of infectious diseases, 2.

PLAIN CITY, MADISON COUNTY.

- Estimated population, 2,000.
Person making report, Dr. E. S. Holmes, health officer.
Health officer, Dr. E. S. Holmes.
Clerk, C. W. Horn.
1. \$175.00.
2. None.
3. Health officer, \$100.00; clerk, \$25.00.
4. None.
6. Seven.
7. No prosecutions.
8. Record of deaths only.
9. No record.
10. No record.
11. No system.
12. No.
13. No.
- Cases of infectious diseases reported: Diphtheria, 7; membranous

croup, 1. Total number of infectious diseases, 8.

PLEASANT HILL, MIAMI COUNTY.

Estimated population, 600.

Person making report, Daniel Brown, health officer.

Health officer, Daniel Brown.

Clerk, N. B. Teeter.

\$15.00.

2. None.

3. Health officer, \$15.00; clerk, none; sanitary policeman, none.

4. One.

5. Yes.

8. Yes.

9. None.

11. Piled up and taken out of the village by the street commissioner.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 6. Total number of infectious diseases, 8.

PLEASANT RIDGE, HAMILTON COUNTY.

Estimated population, 1,100.

Person making report, C. W. Acomb, health officer.

Health officer and clerk, C. W. Acomb.

1. \$65.00.

2. None.

3. Health officer and clerk, \$60.00.

4. None.

6. Two.

8. We have a complete record.

9. Not any.

11. Garbage is disposed of usually by burning.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 1. Total number of infectious diseases, 1.

PLEASANTVILLE, FAIRFIELD COUNTY.

Estimated population, 501.

Person making report, C. C. Hempy, health officer.

Health officer, C. C. Hempy.

Clerk, Frank Rowels.

1. \$43.00.

2. \$6.00.

3. Health officer, \$25.00; clerk, \$7.00.

8. Yes.

9. Fifteen.

10. All.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; whooping cough, 2. Total number of infectious diseases, 3.

PLYMOUTH, RICHLAND COUNTY.

Estimated population, 1,200.

Person making report, Samuel Bottenfield, secretary.

Health officer, Dr. George J. Searle.

Clerk, S. Bottenfield.

1. Not any.

3. Health officer, no salary; clerk, no salary.

4. None.

6. Two.

7. No prosecutions.

8. No.

9. Twelve.

10. Twenty.

11. Not any; each person disposes of it the best they can.

12. No.

13. No.

Cases of infectious diseases reported: None.

POLAND, MAHONING COUNTY.

Estimated population, 400.

Person making report, Dr. C. R. Justice, health officer.

Health officer, Dr. C. R. Justice.

1. None.
3. Health officer, no salary.
4. None.
6. None.
8. Yes.
9. Nine.
10. Nine.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 2; measles, 30. Total number of infectious diseases, 32.

POLK, ASHLAND COUNTY.

Estimated population, 250.

Person making report, W. H. Reinhart, health officer.

Health officer, W. H. Reinhart.

Clerk, J. J. Berry.

1. Nothing.
3. Health officer, \$5.00.
4. One.
5. Yes.
6. None last year.
8. No.
9. None.
10. Two.
11. None.
12. No.
13. No.

POMEROY, MEIGS COUNTY.

Estimated population, 5,000.

Person making report, Dr. R. E. Stobart, health officer.

Health officer, Dr. R. E. Stobart.

Clerk, Dr. J. A. Miller.

1. About \$100.00.
2. None.
3. Health officer, \$50.00; clerk, \$25.00.
4. Heretofore had one.
5. Yes.
6. One.

8. No.
9. No record kept; about thirty.
10. All except two sewers.
11. Thrown in with cinder dumps.
12. No.
13. No.

Cases of infectious diseases reported: Do not report.

PORT CLINTON, OTTAWA COUNTY.

Estimated population, 3,000.

Person making report, Dr. H. J. Pool, health officer.

Health officer, Dr. H. J. Pool.

2. None.
3. Health officer, \$15.00 per month.
4. None.
6. Two.
8. Yes.
9. Six.
10. All.
12. No.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 12; scarlet fever, 3; typhoid fever 1. Total number of infectious diseases, 16.

PORT WASHINGTON, TUSCARAWAS COUNTY.

Estimated population, 600.

Person making report, Dr. E. S. Dunn, health officer.

Health officer, Dr. E. S. Dunn.

Clerk, J. C. Everhart.

1. \$10.00.
2. None.
3. Health officer, no regular salary.
4. None.
6. Four.
8. No.
9. Two.
10. Two.
12. No.
13. No.

(See questions on page 273.)

Cases of infectious diseases reported: Typhoid fever, 3. Total number of infectious diseases, 3.

PROCTORVILLE, LAWRENCE COUNTY.

Estimated population, 525 .

Person making report, R. E. Atkinson, health officer.

Health officer, R. E. Atkinson.

Clerk, J. W. Reckard.

1. Very little.
2. None.
3. Health officer, council has never fixed any salary; sanitary policeman, \$1.25 per day for time employed.

4. One.
5. No.
6. Three or four.
8. No.
9. A few hog pens and other dirty places.

10. Ten.

Cases of infectious diseases reported: Typhoid fever, 3. Total number of infectious diseases, 3.

PROSPECT, MARION COUNTY.

Estimated population, 1,100.

Person making report, G. F. Gast, health officer.

Health officer, G. F. Gast.

Clerk, A. Johnson.

1. \$2,646.67.
2. \$2,596.67.
3. Health officer, \$50.00 per year; clerk, no pay.
4. None.
6. Twenty-nine.
8. Not of births, but will from January 1, 1903.
9. Sixty-one.
10. Fifty-two.
11. Health officer orders the hauling away and burning of garbage.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 8; scarlet fever, 1; typhoid fever, 3; measles, 2; other infectious diseases, 6. Total number of infectious diseases, 20.

PUT IN BAY, OTTAWA COUNTY.

Estimated population, 350.

Person making report, Adam Heidle, health officer.

Health officer, Adam Heidle.

Clerk, Carl Oelschlager.

1. None.
3. Health officer, nothing; clerk, nothing.
4. None.
6. Two.
7. No suits.
8. Yes.
9. None.
12. No.
13. No.

Cases of infectious diseases reported: None.

RAVENNA, PORTAGE COUNTY.

Estimated population, 4,500.

Person making report, Lee W. Wood, health officer.

Health officer, Lee W. Wood.

Clerk, Chas. Pitkin.

1. About \$400.00.
2. Thirty-five or forty dollars.
3. Health officer, \$200.00 per year; clerk, \$50.00.
4. None.
6. Ten.
8. Keep record of births and deaths, but not of diseases.
9. Kept no record.
10. All of them.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 1.

RAWSON, HANCOCK COUNTY.

Estimated population, 500.

Person making report, Michael Smith, health officer.

Health officer, Michael Smith.

Clerk, E. T. Nowlan.

1. \$5.70.

2. None.

3. Health officer, nothing; clerk, nothing.

4. None.

6. Four.

8. Yes.

9. Forty.

10. Thirty-eight.

11. Two garbage barrels emptied on private dumping ground procured by health officer.

12. No.

13. No.

READING, HAMILTON COUNTY.

Person making report, William K. Hausser, health officer.

Health officer, William K. Hausser.

Clerk, John Hoelscher.

2. \$489.50.

3. Health officer, \$100.00; clerk, \$50.00.

4. One.

5. Only in time of epidemic.

7. None.

8. Yes.

9. Two.

10. One.

11. Garbage wagon twice a week; dispose of it outside of village.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 82; diphtheria, 1; scarlet fever, 9; whooping cough, 1; measles, 31; other infectious diseases, 4. Total cases infectious diseases, 128.

RENDVILLE, PERRY COUNTY.

Estimated population, 750.

Person making report, Dr. J. S. Sessoms, health officer.

Health officer, Dr. J. S. Sessoms.

Clerk, T. W. Mickle.

1. \$29.60.

2. None.

3. Health officer, \$40.00; clerk, nothing; sanitary policeman, \$2.00 per month.

4. One.

5. Yes.

6. Five.

7. There were no suits brought.

8. Of contagious diseases only.

9. Fifteen.

10. Fifteen.

11. We have garbage barrels placed where all garbage is thrown in and it is removed as occasion requires.

12. They have not.

13. No.

Cases of infectious diseases reported: Membranous croup, 2; scarlet fever, 7; typhoid fever, 4; whooping cough, 4; other infectious diseases, 10. Total number infectious diseases, 27.

REPUBLIC, SENECA COUNTY.

Estimated population, 560.

Person making report, Dr. F. C. Gilcher, health officer.

Health officer, Dr. F. C. Gilcher.

Clerk, C. E. Womer, D. D. S.

1. \$35.00.

2. None.

3. Health officer, \$20.00; clerk, \$10.00.

4. None.

6. Five.

7. None.

8. Yes.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 3. Total number of infectious, 3.

REYNOLDSBURG, FRANKLIN COUNTY.

Estimated population, 400.

Person making report, B. F. Bern,
marshal.

8. No.

11. None.

12. No.

13. No.

Cases of infectious diseases re-
ported: Diphtheria, 3; typhoid fever,
5. Total number of infectious dis-
eases, 8.

RICHWOOD, UNION COUNTY.

Estimated population, 2,000.

Person making report, C. W. Sloop,
health officer.

Health officer, C. W. Sloop.

Clerk, R. G. Cook.

1. \$60.00.

2. Not any.

3. Health officer, \$5.00 per month;
clerk, not any.

4. One.

5. Yes.

6. Nine.

8. No.

12. No.

13. No.

Cases of infectious diseases re-
ported: Scarlet fever, 4; measles, don't
know.

8. Yes.

11. Looked after by street commis-
sioner.

12. No.

13. No; but we look after it.

Cases of infectious diseases re-
ported: Typhoid fever, 1. Total num-
ber of infectious diseases, 1.

RIPLEY, BROWN COUNTY.

Estimated population, 2,700.

Person making report, G. M. Robb,
health officer.

Health officer, G. M. Robb.

1. \$80.00.

2. \$75.00.

3. Health officer, \$50.00 year.

4. None.

6. Eight.

8. Yes.

9. Twelve.

10. All of them.

11. We have it hauled in tight bar-
rels above town and burned.

12. The health officer.

13. Yes.

Cases of infectious diseases re-
ported: Smallpox, 2; scarlet fever, 6;
typhoid fever, 12. Total number of in-
fectious diseases, 20.

RISING SUN, WOOD COUNTY.

Estimated population, 700.

Person making report, M. C. Mowen,
health officer.

Health officer, M. C. Mowen.

Clerk, John Koons.

1. I cannot tell.

2. None.

3. Health officer, \$5.00 per month.

4. None.

6. Six.

7. No.

8. No.

9. Three.

RIDGEWAY, HARDIN COUNTY.

Estimated population, 500.

Person making report, Dr. E. B.
Crow, health officer.

Health officer, Dr. E. B. Crow.

Clerk, Forrest Newell.

1. \$13.00.

2. None.

3. Health officer, \$10.00; Clerk,
\$3.00.

4. None.

6. No regular; several informal.

10. Three.
 11. A man and team haul it 1½ miles and bury or burn it.
 12. No.
 13. No.
-

ROCKFORD, MERCER COUNTY.

- Estimated population, 1,300.
 Person making report, R. D. Stober, secretary.
 Health officer, O. Hedges.
 Clerk, R. D. Stober.
1. \$282.19.
 3. Health officer, \$111.70.
 6. Eight.
 9. Seven.
 10. Seven.

Cases of infectious diseases reported; Smallpox, 27; Scarlet fever, 4; Total number of infectious diseases, 31.

ROCKY RIDGE, OTTOWA COUNTY.

- Estimated population, 414.
 Person making report, Wm. Schlegel, president.
 Health officer John Krefuunke.
 Clerk, Christ Vollmer.
1. None.
 2. None.
 3. Health officer, \$1.50 per day; clerk, none.
 4. None.
 6. Four.
 8. Yes.
 9. Four.
 10. Four.
 11. None.
 12. No.
 13. No.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 3. Total number of infectious diseases, 5.

ROGERS, COLUMBIANA COUNTY.

- Estimated population, 287.
 Person making report, Geo. N. McCamon, health officer.
 Health officer, Geo. N. McCamon.
1. Not any.
 3. Health officer, \$10.00; clerk, \$25.00.
 4. Health officer acts as sanitary policeman.
 5. Yes.
 6. Twenty-six.
 7. Was none.
 8. Yes.
 9. Not any.
 11. Put in barrels and hauled away.
 12. Do not need any.
 13. No.
-

RUSHVILLE, FAIRFIELD COUNTY.

- Estimated population, 400.
 Person making report, Dr. W. C. Lewis, health officer.
 Health officer, Dr. W. C. Lewis.
 Clerk, A. B. Mortal.
1. \$20.00.
 2. None.
 3. Health officer, \$15.00; clerk, \$5.00.
 4. None.
 6. Three.
 8. Yes.
 9. 23.
 9. Twenty-three.
 10. Twenty-three.
 11. The citizens are compelled to collect garbage accumulated on premises and destroy it, either by burning or hauling away.
 12. No.
 13. No.
-

SABINA, CLINTON COUNTY.

Estimated population 1,481.

Person making report, H. C. Curtis,
health officer.

Health officer, H. C. Curtis.

Clerk, Geo. C. Barnes.

1. \$671.52.

2. \$561.52.

3. Health officer, \$50.00; sanitary
policeman, \$60.00.

4. One.

5. Yes.

6. Twenty-nine.

7. None. Ohio Conference Camp-
meeting Board vs. H. C. Curtis, et al.,
was a suit enjoining the board of
health from taking any buildings of
the campmeeting board for use as a
pest house. After epidemic had sub-
sided was compromised by each party
paying one-half the costs, which was
\$22.40.

8. Not of births but do of deaths and
diseases.

9. Thirty.

10. All.

11. All garbage removed by scav-
enger who is paid by property holders.

12. No.

13. No.

Cases of infectious diseases report-
ed; Smallpox, 12; typhoid fever, 2;
measles, 10; scarlatina, 5. Total num-
ber of infectious diseases, 29.

12. No.

13. No.

Cases of infectious diseases report-
ed: Smallpox, 21; diphtheria, 4; mem-
branous croup, 4; scarlet fever, 3; ty-
phoid fever, 6; whooping cough, 1;
measles, 20. Total number of infecti-
ous diseases, 59.

ST. CLAIRSVILLE, BELMONT COUNTY.

Estimated population, 1,200.

Person making report, S. L. West,
health officer.

Health officer, S. L. West.

Clerk, Jno. C. Nichols.

1. \$455.71.

2. Whole amount.

3. Health officer and clerk, allow-
for services.

4. None.

6. Three.

8. No.

11. Hauled outside corporate limits.

12. No.

13. No.

Cases of infectious diseases report-
ed: Membranous croup, 2.

ST. BERNARD, HAMILTON COUNTY.

Person making report, Wm. Schul-
hof, health officer.

Health officer, William Schulhof.

Clerk, Chas. Burkhardt.

1. \$1,143.83.

2. \$883.74.

3. Health officer, \$120.00; clerk,
\$50.00; sanitary policeman, \$100.00.

4. One.

5. Yes.

6. Ten.

8. Yes.

9. Thirteen.

10. Thirteen.

ST. PARIS, CHAMPAIGN COUNTY.

Estimated population, 1,300.

Person making report, Dr. C. A. Of-
fenbacher, health officer.

Health officer, Dr. C. A. Offenbacher.

1. \$93.00.

2. \$36.60.

3. Health officer, \$50.00.

4. One.

5. No.

6. Three.

8. Will from now on.

9. One.

10. One.

11. Have no system.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 4; scarlet fever, 4; typhoid fever, 2. Total number of infectious diseases, 10.

SALESVILLE, GUERNSEY COUNTY.

Estimated population, 300.

Person making report, J. W. Starr, health officer.

Health officer, J. W. Starr.

Clerk, G. W. Brill.

1. Nothing.

3. No salaries.

4. One.

5. Yes.

6. Two.

7. None.

8. Yes, except of births.

9. None.

10. None.

11. Everyone disposes of their own.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 4.

SALINEVILLE, COLUMBIANA COUNTY.

Estimated population, 3,000.

Person making report, Dr. H. M. Calvin, health officer.

Health officer, Dr. H. M. Calvin.

Clerk, James I. Smith.

1. \$10.00 for printing and notices in paper.

2. Not any.

3. Health officer, \$100.00; clerk, \$25.00.

4. Not any.

6. Twelve.

7. Suit was brought against one person for running his waste from closet and dish water and wash water into

an open drain on the alley. The mayor had the drain fixed at the expense of the town, and case was dismissed before there were any costs on it. The work was done by the solicitor, or we would have had some costs to pay.

8. Just of deaths and contagious diseases.

9. Thirty-two.

10. Thirty.

11. We have no system to collect garbage.

12. No.

13. No.

Cases of infectious diseases reported: Membranous croup, 3; scarlet fever, 2; typhoid fever, 10; measles, 3; mumps, 35. Total number of infectious diseases, 53.

SAVANNAH, ASHLAND COUNTY.

Estimated population, 325.

Health officer, J. F. Brown.

1. \$6.00.

2. None.

8. No.

9. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 2. Total number of infectious diseases, 2.

SCIO, HARRISON COUNTY.

Estimated population, 1,200.

Person making report, G. D. Custer, health officer.

Health officer, G. D. Custer.

Clerk, M. E. McAdoo.

2. \$292.25.

3. No salaries.

4. None.

6. Eight.

7. None.

11. Hauled to garbage lot, buried or burned.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; membranous croup, 1; scarlet fever, 3; typhoid fever, 2; whooping cough, 7; measles, 1; other infectious diseases, 3. Total number of infectious diseases, 18.

1. \$31.50.

2. None.

3. Clerk, \$25.00 per year.

4. One.

5. Yes.

6. Four.

8. They do.

9. One.

10. One.

11. By carting.

13. No.

SCOTT, VAN WERT and PAULDING COUNTIES.

Estimated population, 300.

Person making report, G. W. Clifton, clerk.

Health officer, S. S. Beach.

Clerk, G. W. Clifton.

1. About \$75.00.

2. A portion for quarantine purposes.

3. Health officer, for services rendered; clerk, \$2.00 per year.

4. None.

6. Seven.

7. None.

8. They are all on file in minute books.

9. Twenty-seven.

10. Twenty-six.

11. The village of Scott has rented a garbage ground outside of the corporation, and garbage is gathered up in barrels and boxes and hauled there and disposed of.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 6.

SMITHFIELD, JEFFERSON COUNTY.

Estimated population, 700.

Person making report, Ross C. Moore, health officer.

Health officer, Ross C. Moore.

Clerk, W. B. Naylor.

1. \$39.25.

2. All of it.

3. Health officer, nothing; only in case of some contagious disease.

4. None.

6. Ten.

8. Yes.

9. One.

10. One.

11. It is hauled away by the farmers for manure.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 2; scarlet fever, 1; mumps, 50. Total number of infectious diseases, 53.

SHREVE, WAYNE COUNTY.

Estimated population, 1,200.

Person making report, V. D. Manson, Jr., clerk.

Clerk, V. D. Manson, Jr.

SOMERSET, PERRY COUNTY.

Estimated population, 1,200.

Person making report, Dr. O. L. Iden, health officer.

Health officer, Dr. O. L. Iden.

Clerk, Henry Spencer.

1. \$29.00.

2. None.

3. Health officer, \$25.00 a year; clerk, \$2.00 per meeting.

4. None.

6. One regular and one called meeting.

8. No.

9. Numerous reports of dead animals; canning factory.

10. All dead animals removed; canning factory garbage removed only in part.

11. Families who keep hogs collect garbage in their respective neighborhoods.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 7; membranous croup, 2; typhoid fever, 4; whooping cough,

1. Total number of infectious diseases, 14.

SOUTH BLOOMFIELD, PICKAWAY COUNTY.

Estimated population, 300.

Person making report, Dr. Chas. E. Blacker, health officer.

Health officer, Dr. Chas. E. Blacker. Clerk, Herman Peter.

1. \$7.75.

2. None.

3. Health officer, paid for actual services according to fee bill; clerk, \$5.00 per annum; sanitary policeman, payment stipulated at time of service.

4. None regularly. The number needed in emergency.

5. No.

6. One only.

8. No.

9. None.

10. None.

11. The village is so small and citizens so well disposed that such necessity has not arisen.

12. No.

13. No.

SOUTH CHARLESTON, CLARK COUNTY.

Estimated population, 1,250.

Person making report, John S. Brown, health officer.

Health officer, John S. Brown.

2. None.

3. Health officer, \$25.00; sanitary policeman, \$25.00.

4. One.

5. Yes.

6. Six.

9. Several.

10. All.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 3; whooping cough, 5; measles, 46; other infectious diseases, 1. Total number of infectious diseases, 55.

SOUTH LEBANON, WARREN COUNTY.

Estimated population, 500.

Person making report, Dr. Arthur D. Spence, health officer.

Health officer, Dr. Arthur D. Spence. Clerk, Geo. W. Snook.

1. \$91.58.

4. One.

5. No.

6. Six.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 9; typhoid fever, 1; measles, 8. Total number of infectious diseases, 18.

SOUTH POINT, LAWRENCE COUNTY.

Person making report, C. Wayne McCoy, health officer.

Health officer, C. Wayne McCoy.

1. None.
 3. Health officer, \$25.00 per year.
 8. Of those reported, yes.
 9. One.
 10. One.
 11. None considered necessary.
- Each family disposes of its own, as it sees proper.
12. No.
 13. No.

Cases of infectious diseases reported: Typhoid fever, 3. Total number of infectious diseases, 3.

SPENCERVILLE, ALLEN COUNTY.

Estimated population, 2,000.

Person making report, M. W. Wintermute, clerk.

Health officer, F. Hirn.

Clerk, M. W. Wintermute.

1. \$61.92.
2. None.
3. Health officer, \$25.00 per annum; clerk, 50 cents per meeting; sanitary policeman, \$25.00 per annum.
4. One.
5. Yes.
6. Nine.
7. None.
8. None of births or deaths; record kept of contagious or infectious diseases reported.

11. Have dumping grounds outside of corporation limits.

12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 5; measles, 57. Total number of infectious diseases 62.

SPRINGBORO, WARREN COUNTY.

Estimated population, 490.

Person making report, L. A. Shumard, health officer.

Health officer, L. A. Shumard.

Clerk, Charles Banter.

1. \$19.29.
2. None.
3. Health officer, about \$10.00 per year.
4. None.
6. Twelve.
8. The health officer keeps a record of the births and deaths and also of diseases.
9. Several.
11. Our street commissioner hauls all garbage away. We have a place outside of the corporation where it is dumped.

12. No.

13. No.

Cases of infectious diseases report

12. Total number of cases infectious ed: Whooping cough, 23; chicken pox, diseases, 35.

SPRING VALLEY, GREENE COUNTY.

Estimated population, 600.

Person making report, S. S. Holland, health officer.

Health officer, S. S. Holland.

Clerk, G. Val. Sims.

1. \$37.80.
2. \$10.00.
3. Health officer, \$25.00 per year; clerk, \$5.00.
4. None employed.
6. Eight.
8. Yes.
9. Four or five.
10. All.
11. None.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 2.

STRASBURG, TUSCARAWAS COUNTY.

Estimated population, 728.

Person making report, Dr. J. C. Schutzbach, health officer.

Health officer, Dr. J. C. Schutzbach.
Clerk, Wm. Armd.

1. \$25.00.
2. None.
3. Health officer, \$15.00; clerk, none; sanitary policeman, \$10.00.
4. One.
5. Yes.
6. Seven.
7. None.
8. Yes.
9. Twenty-seven.
10. Yes.
11. Hauling out of town. Some is buried, other just on surface for soil.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 2; other infectious diseases, 3. Total number of infectious diseases, 5.

STRYKER, WILLIAMS COUNTY.

Estimated population, 1,200.

Person making report, Dr. C. F. Mignin, health officer.

Health officer, Dr. C. F. Mignin.
Clerk, J. A. Leavy.

1. None.
3. No salaries.
4. None.
6. Four.
8. Yes.
9. Two.
10. Two.
11. Have none.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 2; whooping cough, 3. Total number of infectious diseases, 5.

SUGAR GROVE, FAIRFIELD COUNTY.

Estimated population, 400.

Person making report, Dr. E. R. Brown, health officer.

1. \$25.00 paid health officer.
 2. No smallpox, but expect it any time.
 3. Health officer, \$5.00 per month.
 4. Marshal acts as sanitary police.
 8. The best it can obtain.
 9. Six.
 10. Four.
 11. Deposit it on dump and burn it.
 12. No.
 13. No.
-

SUMMERFIELD, NOBLE COUNTY.

Estimated population, 600.

Person making report, John Baughin, health officer.

Health officer, John Baughin.
Clerk, Chas. Hare.

1. About \$50.00.
2. None.
3. Health officer, \$12.00.
4. None.
6. Eight.
7. No prosecutions.
8. No.
9. None.
11. The street commissioner attends to the collection. Garbage is burned.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 23; membranous croup, 2; other infectious diseases, 1. Total number of infectious diseases, 26.

SYLVANIA, LUCAS COUNTY.

Estimated population, 700.

Person making report, G. A. Crandall, health officer.

Health officer, G. A. Crandall.

1. \$30.00.
2. Not any.
3. Health officer, \$24.00; clerk, \$10.00; sanitary policeman, paid by fees.

4. One.
5. No.
6. Two.
7. No suits brought.
8. Births are not reported, otherwise yes.
9. Eight.
10. Eight.
11. Not any
12. No.
13. No.

Cases of infectious diseases reported: Measles, 1. Total number of infectious diseases, 1.

TIPPECANOE CITY, MIAMI COUNTY.

Estimated population, 2,000.

Person making report, C. R. Moser, health officer.

Health officer, C. R. Moser.

Clerk, John M. Haaga.

1. \$112.50 for salary, \$17.14 for supplies, formaldehyde and repairs.
2. None.
3. Health officer, \$100.00 per year; clerk, \$50.00 per year.
4. None.
6. Six.
8. Yes.
9. Five.
10. All of them.
11. Have secured grounds about one and a half miles from corporation line, and all garbage dumped thereon.
12. No.
13. No.

Cases of infectious diseases reported: Diphtheria, 7; typhoid fever, 2; whooping cough, 1; measles, 1. Total number of infectious diseases, 11.

TRENTON, BUTLER COUNTY.

Estimated population, 400.

Person making report, Wilson Thompson, health officer.

Health officer, Wilson Thompson.
Clerk, Louis Brill, Jr.

1. \$1.85.
2. None.
3. Health officer, \$20.00 per year; clerk none.
4. None.
6. None.
7. None.
8. Yes.
9. None.
10. None.
11. Most people do away with their own garbage and the street commissioner hauls the rest out of the village.
12. None.
13. None.

Cases of infectious diseases reported: Typhoid fever, 4; whooping cough, 40; measles, 10; other infectious diseases, 4. Total number of infectious diseases, 58.

TORONTO, JEFFERSON COUNTY.

Estimated population, 4,000.

Person making report, D. O. Ault, secretary.

Health officer, A. W. Goodlin.

Clerk, D. O. Ault.

1. None.
2. None.
3. Health officer, \$10.00 per month; clerk, \$50.00 per year.
4. None.
6. First Wednesday each month.
7. None.
8. No.
9. Special notices used by secretary by order of health officer.
10. All were abated. All complied with notices.
11. Dumping ground procured.
12. None appointed.
13. No.

Cases of infectious diseases reported: Scarlet fever, 16; typhoid fever, 28. Total number of infectious diseases, 44.

UHRICHSVILLE, TUSCARAWAS COUNTY.

Estimated population, 5,000.

Person making report, Rufus W. Walton, clerk.

Health officer, Dr. James A. McCollam.

Clerk, R. W. Walton.

1. \$300.00.
2. Nothing.
3. Health officer, \$20.00 per month; clerk, \$3.00 per month; sanitary policeman, \$50.00 per year.

4. One.
5. Yes.
6. Twelve.
8. Yes.
9. 125.
10. Nearly all.
11. Haul it outside the city and burn it.
12. Yes.
13. Yes.

Cases of infectious diseases reported: Diphtheria, 6; typhoid fever 5. Total number of infectious diseases, 11.

UNION CITY, DARKE COUNTY.

Person making report, Dr. J. E. Detamore, health officer.

Health officer, Dr. J. E. Detamore.

Clerk, John Hoover.

1. \$225.00, including salaries of officers.
2. \$100.00.
3. Health officer, \$100.00; clerk, \$25.00; sanitary policeman, so much per day when employed.
4. We just employ them when needed.
5. No, our marshal acts when we have no contagious disease.
6. Twenty-two.
7. No.
8. Yes.
9. Twelve.
10. Twelve.

11. We have no specified system.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 15; scarlet fever, 1; typhoid fever, 5; measles, 1. Total number of infectious diseases, 22.

UNIONVILLE CENTER, UNION COUNTY.

Estimated population, 300.

Person making report, Lewis Harris, clerk.

Health officer, Dr. C. O. McCune.

Clerk, Lewis Harris.

1. \$5.00.
2. None.
3. Health officer, none; clerk, 50 cents per meeting.
4. None.
6. Four.
8. No.
9. One.
10. One.
12. No.
13. No.

Cases of infectious diseases reported: Membranous croup, 1; scarlet fever 8; whooping cough, 2. Total number of infectious diseases, 11.

VANDALIA, MONTGOMERY COUNTY.

Estimated population, 350.

Person making report, W. H. Riley, health officer.

Health officer, W. H. Riley, M. D.

1. None.
2. None.
3. Health officer, \$20.00 per annum.
4. None.
7. No suits.
8. No.
9. None.
10. None.

11. None adopted.
12. No.
13. No.

VERMILION, ERIE COUNTY.

Estimated population, 1,300.

Person making report, B. S. Horton,
health officer.

Health officer, B. S. Horton.
Clerk, C. Nuhn.

1. \$139.00
2. \$74.50.
3. Health officer, \$35.00; clerk,
\$25.00.

4. None, except during time of
varioid cases.

6. Eight.

7. Two cases for obstructing action
of the board in relation to vaccination.
In both cases the parties agreed to
vaccinate or keep children out of
school. All children were required to
present to principal certificate of vacci-
nation from reputable medical doctor.
Which was complied with except in the
two cases named above.

8. No.

9. But very few.

10. All except one that is up to
the council.

11. A scavenger who gathers it
about three times a week during the
summer and twice a week in winter.

12. No.

13. No.

Cases of infectious diseases report-
ed: Smallpox or varioid, 2.

VERSAILLES, DARKE COUNTY.

Estimated population, 1,500.

Person making report, C. F. Ryan,
health officer.

Health officer and clerk, C. F. Ryan.

1. None.
3. Health officer, \$24.00, clerk, \$24;
sanitary policeman, \$20.00.

4. One.

5. Yes.

6. Eleven.

7. There were no prosecutions.

8. Yes.

9. Thirty-five.

10. Thirty.

11. We have no system, where we
find garbage we order it removed.

12. No.

13. No.

Cases of infectious diseases report-
ed: Measles, 35.

VIENNA X ROADS, CLARK COUNTY.

Estimated population, 325.

Person making report, Dr. E. A. Dye,
health officer.

Health officer, Dr. E. A. Dye.

Clerk, Roy Cartie.

1. None.

4. One.

5. Yes.

6. Two a month.

8. Do not.

9. Six.

10. Six.

12. No.

13. No.

Cases of infectious diseases report-
ed: Measles, 4.

VINTON, GALLIA COUNTY.

Estimated population, 500.

Person making report, Joel A. Pugh,
health officer.

Health officer, Joel A. Pugh.

1. None.

3. Health officer, no salary.

6. None. No meeting of board of
health since 1900.

8. No.

9. Ten.

10. Three.

11. No system at all. Garbage is

disposed of by dumping in back lots, alleys and gutters.

Cases of infectious diseases reported: Typhoid fever, 9. Total number of infectious diseases, 9.

WADSWORTH, MEDINA COUNTY

Estimated population, 2,200.

Persons making report, Dr. C. N. Lyman, health officer, and M. C. Lytle, clerk.

Health officer, Dr. C. N. Lyman.

Clerk, M. C. Lytle.

1. \$25.00.

2. None.

3. Health officer, nothing; clerk, nothing; sanitary policeman, what he earns by serving papers.

4. Only one; at present none.

5. No.

6. Six.

8. No.

9. Five.

10. All.

11. The scavenger collects when directed by the board of health or by private individuals. Carries it out of corporation onto land that he has obtained permission to deposit on.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 15; typhoid fever, 4; whooping cough, 2. Total number of infectious diseases, 21.

WALDO, MARION COUNTY.

Estimated population, 275.

Person making report, B. D. Osborn, health officer.

Health officer, B. D. Osborn.

Clerk, John Schaaf.

1. Don't know, but very little.

2. Just a few telephone messages.

3. No salaries.

4. None.

6. Three.

7. No prosecutions.

8. No.

9. None.

10. None.

11. Have no system.

12. No.

13. No.

WAPAKONETA, AUGLAIZE COUNTY.

Estimated population, 4,200.

Person making report, A. Kohler, health officer.

Health officer and clerk, A. Kohler.

1. \$287.51.

2. \$69.78.

3. No fixed salary.

4. Marshal acts as sanitary police.

6. Twelve.

8. Yes.

9. Thirty-nine.

10. Thirty-nine.

11. All garbage is collected and hauled to a lot leased by the village outside the corporate limits.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 1; diphtheria, 5; scarlet fever, 7. Total number of infectious diseases, 13.

WASHINGTON, GUERNSEY COUNTY.

Estimated population, 400.

Person making report, S. B. Lawrence, health officer.

Health officer, S. B. Lawrence.

1. Nothing.

3. Health officer, nothing; sanitary policeman, nothing; only paid when on duty.

4. One.

5. No.

6. None.

8. Of deaths and contagious and infectious diseases, only.

9. None.
12. No.
13. No.

WASHINGTONVILLE, COLUMBIANA AND MAHONING COUNTIES.

Estimated population, 1,200.

Person making report, Wm. F. Culler, health officer.

Health officer, Wm. F. Culler.

Clerk, Orville P. Moore.

1. \$42.45.
2. Five dollars paid for diagnosing a case supposed to be smallpox.
3. Health officer, \$15.00 per year; clerk, no salary—paid as corporation clerk; sanitary policeman, 20 cents per hour for labor.
4. One.
5. Yes.
6. Twelve.
7. None.
8. No.
9. About one dozen.
10. All.
12. No.
13. No.

WAVERLY, PIKE COUNTY.

Estimated population, 2,000.

Person making report, James J. Emmitt, health officer.

Health officer, James J. Emmitt.

Clerk, J. W. Dingledine.

1. \$139.20.
2. None.
3. Health officer, \$100.00 per annum; clerk, \$25.00 per annum.
4. Employ only when occasion requires.
5. No.
6. Twelve.
7. No suits.
8. Deaths, infectious and contagious diseases only.
9. Thirty.
10. Twenty-eight.

11. Collected by swill carts and buried.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 5; mumps, 500. Total number of infectious diseases, 505.

WAYNESBURG, STARK COUNTY.

Estimated population, 800.

Person making report, Dr. Gustav A. Shane, health officer.

Health officer, Dr. Gustav A. Shane. Clerk, H. Sweet.

1. About \$50.00.
2. None.
3. Health officer, fees for service rendered; clerk, \$5.00.
4. None.
6. Six regular, three called.
7. No prosecutions.
8. Keeps a record of infectious and contagious diseases only.
9. Three.
10. Three.
11. Garbage is generally collected on premises where made and carted to a general receptacle. Whatever can be burned is destroyed on the premises.
12. No.
13. No.

Cases of infectious diseases reported. Mumps, 40.

WAYNESVILLE, WARREN COUNTY.

Estimated population, 720.

Person making report, Dr. H. Q. Alexander, health officer.

Health officer, Dr. H. Q. Alexander. Clerk, J. H. Casky.

1. \$175.00.
3. Health officer, \$50.00; clerk, \$10.00.
4. None.
6. Fifteen.

8. No.
9. None in writing but a great many verbal ones.
10. All were abated.
11. We have a garbage wagon which makes its regular trips and removes the garbage out of village limits.
12. No.
13. No.

WELLINGTON, LORAIN COUNTY.

Estimated population, 2,160.
 Person making report, R. G. Holland, health officer.

- Health officer R. G. Holland.
 Clerk, H. W. Hall.
1. Probably \$125.00.
 3. Health officer, \$100.00; clerk, none.
 8. No.
 9. Probably 25 or 30.
 10. All were abated.
 11. We have no system.
 12. It has not.
 13. No.

Cases of infectious diseases reported: Diphtheria, 1; scarlet fever, 9; typhoid fever, 5; whooping cough, 26; measles, 8. Total number infectious diseases, 49.

WEST CARROLLTON, MONTGOMERY COUNTY.

- Estimated population, 1,300.
 Person making report, Geo. W. Deemer, health officer.
 Health officer, Geo. W. Deemer.
 Clerk W. C. Wilson.
1. \$24.00.
 2. \$24.00.
 3. Health officer, \$5.00; clerk, no salary.
 4. None.
 6. Two.
 7. No prosecutions.
 8. No.
 9. Fifty-six.

10. Fifty-six.
 11. The collection is done by the village council. Deposited in a pit about one-half mile from the village.
 12. No.
 13. No.
- Cases of infectious diseases reported: Smallpox, 1; scarlet fever, 2; typhoid fever, 3; whooping cough, 4; measles, 8. Total number of infectious diseases, 18.

WESTERN STAR, SUMMIT AND MEDINA COUNTIES.

- Estimated population, 148.
 Person making report, W. W. Becker, health officer.
 Health officer W. W. Becker.
 Clerk, B. P. Hill.
1. None.
 3. Health officer, none; clerk, none.
 6. One.
 8. Yes
 9. None.
 10. None.
 11. None.
 12. No.

WESTERVILLE, FRANKLIN COUNTY.

- Estimated population, 1,500.
 Person making report, Peter A. Conklin, health officer.
 Health officer, Peter A. Conklin.
 Clerk, C. P. Sprague.
3. Health officer is paid for the work done, at 15 cents per hour.
 4. None.
 8. No.
 10. All that were reported.
 11. No system adopted except all are required to remove garbage in a certain specified time, otherwise, the board removes all garbage and filth and charges the same to the property and the charges are put upon the tax duplicate.

(See questions on page 273.)

12. Have not.

13. Does not.

Cases of infectious diseases reported: Typhoid fever, 3. Total number infectious diseases, 3.

WEST JEFFERSON, MADISON COUNTY.

Estimated population, 1,500.

Person making report, W. R. Borland, health officer.

Health officer, W. R. Borland.

Clerk, Frank W. Howard.

1. \$49.15.

2. None.

3. Health officer, \$5.00 per month; clerk, 50 cents per meeting.

4. None.

6. Ten.

7. None.

8. Of deaths and infectious diseases, yes; births, no.

9. Twenty-six.

10. Twenty-five.

11. Haul to dumping ground.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 2. Total number of infectious diseases, 2.

WEST LEIPSIC, PUTMAN COUNTY.

Estimated population, 500.

Person making report, G. E. Garwood, health officer.

Health officer, G. E. Garwood.

Clerk, Eugene Lamphear.

1. Something near \$250.00

2. \$250.00.

3. Health officer, no stated salary; clerk, no salary; sanitary policeman, \$1.50 per day for time employed.

4. One regular; two during small-pox epidemic.

5. Yes, except the special one.

6. About fifteen.

8. Only of the infectious and contagious diseases.

9. One.

10. One.

11. No particular system.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 14. Total number infectious diseases, 14.

WEST LIBERTY, LOGAN COUNTY.

Estimated population, 1,300.

Person making report, Dr. A. C. Brindle, health officer.

Health officer and clerk, Dr. A. C. Brindle.

1. \$92.15.

2. Not any.

3. Health officer and clerk, \$75.00 per year; sanitary policeman, \$2.50 per month.

4. One.

5. Seven months beginning in April.

6. Five.

8. Yes, except births.

9. Twenty by notice; ten personally.

10. Twenty.

11. Garbage and night soil are hauled away between the hours of 9:30 p. m., and 4:30 a. m., in air tight tanks. Garbage is disposed of, by those feeding hogs, on the outskirts of the village.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 8; scarlet fever, 8; typhoid fever, 9; measles, 3; pneumonia, 2. Total number of infectious diseases, 30.

WEST MANSFIELD, LOGAN COUNTY.

Estimated population, 1,000.

Person making report, H. A. Skidmore, health officer.

Health officer, H. A. Skidmore.

Clerk, A. T. Cook.

1. About \$250.00.
2. About \$150.00.
3. Health officer, \$25.00; clerk, \$25.00.
4. None.
8. No.
9. Don't know.
10. Don't know.
13. No.

Cases of infectious diseases reported: Smallpox, 9; typhoid fever, 20. Total number of infectious diseases, 29.

WEST MILTON, MIAMI COUNTY.

Estimated population, 1,200.

Person making report, Dr. Gainor Jennings, health officer.

Health officer, Dr. Gainor Jennings. Clerk, W. Foster Jay.

1. \$246.98.
2. \$156.13.
3. Health officer, when there are cases of scarlet fever, smallpox or diphtheria, \$10.00 per month, if no such cases \$8.00 per month; clerk, 65 cents for each meeting of board of health.
4. None.
6. Ten.
7. None.
8. No.
9. 234.
10. 231.
11. No regular system has been adopted. Householders have garbage taken across river from West Milton and deposited on Furnas' field, as often as ordered by health officer.
12. No.
13. No.

Cases of infectious diseases reported: Smallpox, 5; scarlet fever, 3; typhoid fever, 6; whooping cough, 10; 35. Total number of infectious diseases, 71.

WESTON, WOOD COUNTY.

Estimated population, 1,000.

Person making report, Dr. J. W. Williams, health officer.

Health officer, Dr. J. W. Williams.

Clerk, A. S. Coward.

1. \$20.00.
2. None.
3. Health officer, no salary fixed; clerk, no salary fixed; sanitary policeman, \$15.00 a year.
4. One.
5. Yes.
6. Three.
8. Of contagious diseases only.
9. Three.
10. Three.
11. No system has been adopted.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 2; whooping cough, 3. Total number of infectious diseases, 5.

WEST SALEM, WAYNE COUNTY.

Estimated population, 650.

Person making report, Eli Rupert, mayor.

Health officer, Eli Rupert.

Clerk, G. F. Read.

1. \$5.00.
2. None.
3. No salaries.
4. None.
6. Two.
8. Yes.
9. One.
10. One.
11. We are a village and most of our garbage is collected by farmers.
12. No.
13. No.

Cases of infectious diseases reported: Whooping cough, 50.

WEST UNION, ADAMS COUNTY.

Estimated population, 1,200.

Person making report, James W. Bunn, health officer.

Health officer, James W. Bunn.

Clerk, Edward Zimmerman.

1. \$5.00.

2. \$5.00.

3. No salaries.

4. None.

6. Eight.

7. No suits.

8. Yes.

9. Four.

10. Four.

11. It is all hauled outside corporation.

12. No.

Cases of infectious diseases reported: Smallpox, 2; Typhoid fever, 2; whooping cough, 2; total cases infectious diseases, 6.

Person making report, E. Brown, clerk.

Health officer, Dr. S. K. Christy.

Clerk, E. Brown.

1. \$34.00.

2. \$4.00.

3. Health officer, \$20.00; clerk, \$10.00; sanitary policeman, \$1.50 per day.

4. One.

5. No.

6. Three.

7. None.

8. No.

9. One.

10. One.

11. Property owners dispose of their own garbage.

12. No.

13. No.

Cases of infectious diseases reported: Scarlet fever, 3. Total number of infectious diseases, 3.

WILLOUGHBY, LAKE COUNTY.

Health officer, James Maloney.

Clerk, C. C. Jenkins.

1. \$199.59.

2. None.

3. Health officer, \$5.00 per month; clerk, nothing.

4. None.

6. Six.

8. Have not, but intended to begin with the year.

9. Fifteen.

10. Fifteen.

11. No.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 4; scarlet fever, 8. Total number infectious diseases, 14.

WILMINGTON, CLINTON COUNTY.

Estimated population, 4,000.

Person making report, Dr. A. T. Quinn, health officer.

Health officer and clerk, Dr. A. T. Quinn.

1. About \$400.00.

2. \$200.00.

3. Health officer, \$50.00; clerk, \$25.00; sanitary policeman, \$50.00.

4. One.

5. Yes.

6. Average twelve.

7. None.

8. Yes.

9. A number of small complaints.

10. All reported.

11. The garbage is collected in wagons and hauled into the country and dumped on farm lands.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; typhoid fever 2; other

WILLSHIRE, VAN WERT COUNTY.

Estimated population, 700.

infectious diseases, 2. Total number of infectious diseases, 6.

membranous croup, 1; scarlet fever, 8; typhoid fever, 2; measles, 23. Total number of infectious diseases, 41.

WINDHAM, PORTAGE COUNTY.

Estimated population, 350.

Person making report H. J. Higley.
health officer.

Health officer, H. J. Higley.

Clerk, F. D. Snow.

1. \$9.72.

2. None.

3. Health officer, pleasure of the board; clerk, none.

4. Not any.

6. Twelve.

7. No prosecutions.

8. Death and infectious diseases.

9. One.

10. One.

11. Not any.

12. No.

13. No.

Cases of infectious diseases reported: Measles, 3.

WINTON PLACE, HAMILTON COUNTY.

Person making report, George S. Mackelfresh, secretary.

Health officer, G. C. Wildman.

Clerk, Geo. S. Maskelfresh.

1. \$550.00.

2. \$425.00.

3. Health officer, \$120.00 per annum; clerk, \$24.00 per annum; sanitary policeman, \$24.00 per annum.

4. One.

5. Yes.

6. Thirteen.

7. None.

8. Yes.

9. No record.

10. No record.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 5; diphtheria, 2;

WOODSFIELD, MONROE COUNTY.

Estimated population, 2,500.

Person making report, A. S. Baker,
health officer.

Health officer, A. S. Baker.

Clerk, Geo. Jennings.

1. \$281.30.

2. \$166.55.

3. Health officer, \$75.00 per year; clerk, \$1.00 each meeting.

4. None.

6. Five.

8. Infectious diseases only.

9. 75.

10. All.

11. Send it outside corporate limits.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 1; membranous croup, 1; scarlet fever, 40; typhoid fever, 4; measles, 10. Total number of infectious diseases, 56.

WORTHINGTON, FRANKLIN COUNTY.

Estimated population, 500.

Person making report, W. P. Vest;
secretary.

Health officer, Bert Berrell.

Clerk, W. P. Vest.

1. \$16.14.

3. Health officer, not paid any salary; is marshal and street commissioner, and is employed by the town, and paid by the month; the clerk is clerk of the village but receives nothing extra for services as secretary board of health.

4. None.

6. Three.

8. Of births, marriages and deaths but not of diseases.

9. The whole town was inspected by the health officer and everybody was notified to abate any nuisances that might exist about their premises.

10. All complied with the order.

11. Have none.

12. No.

13. No.

Cases of infectious diseases reported: Typhoid fever, 2; chickenpox, many cases.

WREN, VAN WERT COUNTY.

Estimated population, 260.

Person making report, P. J. Fry-singer, clerk.

Health officer, P. G. Havis.

Clerk, P. J. Frysinger.

1. \$10.65.

2. None.

3. No salaries.

4. One.

5. Yes.

6. Six.

7. None.

8. Yes.

9. Two.

10. Two.

11. None.

12. No.

13. No.

Cases of infectious diseases reported: Diphtheria, 3. Total number of infectious diseases, 3.

WYOMING, HAMILTON COUNTY.

Estimated population, 1,500.

Person making report, George Stoddard, health officer.

Health officer and clerk, George Stoddard.

1. \$130.00.

2. None.

3. Health officer and clerk, \$100.00; sanitary policeman, \$25.00.

4. One; but all members of the Wyoming police department are, under the rules of the village, subject to call of health officer when necessary.

5. Sanitary policeman only, others as necessity requires.

6. Four regular meetings.

7. None.

8. Yes.

9. Fifteen.

10. Fifteen.

11. Gathered by wagon twice a week, or oftener if necessary, hauled out of village onto a farm and fed to hogs.

12. No.

13. No, but we know just who does sell it and where it comes from.

Cases of infectious diseases reported: Whooping cough, 1; measles, 6. Total number of infectious diseases, 7.

YELLOW SPRINGS, GREENE COUNTY.

Estimated population, 1,500.

Person making report, Isaac Loe, health officer, and J. Peery Miller, clerk.

Health officer, Isaac Loe.

Clerk, J. Peery Miller.

1. \$60.59.

2. None.

3. Health officer, \$24.00 per year, and fees for special work; clerk, \$10.00 per year.

4. None.

6. Eight.

8. No, but propose to do so.

9. About seventy-five.

10. Seventy-five.

11. Barrelled and carted off.

12. No.

13. No.

Cases of infectious diseases reported: Smallpox, 2; diphtheria, 2; scarlet fever, 30; typhoid fever, 6; whooping cough, 15; measles, 40. Total number of infectious diseases, 95.

ZANESFIELD, LOGAN COUNTY.

Estimated population, 325.

Person making report, Dr. Chas. M. Wanzer, secretary.

Health officer and clerk, Dr. C. M. Wanzer.

1. None.
3. No salaries.
4. None.
5. No.
6. None past year.
7. No litigation.
8. No.
9. None.
10. None.
11. No system.
12. No.
13. No.

Cases of infectious diseases reported: Typhoid fever, 4; measles, 20. Total number of infectious diseases, 24.

ZOAR, TUSCARAWAS COUNTY.

Estimated population, 250.

Person making report, Charles Breymeier, health officer.

Health officer, Charles Breymeier.

Clerk, Edgar Ricof.

1. None.
3. No salaries.
4. None.
6. None.
7. None.
8. Yes.
9. One.
10. One.

11. We have had no need of a system for the collection of garbage. Removal of garbage is attended to by property holders.

12. No.
13. No.

ANNUAL REPORTS OF TOWNSHIP BOARDS OF HEALTH.

There are 1,352 township boards of health in the state. That is, the law provides that the three trustees of the township shall constitute a board of health for the township, such board to have all the powers and duties of boards of health of cities and villages. In a considerable number of townships the trustees have taken no action as a board of health.

The following list of questions was sent to the clerk of each township board of health:

1. Has your board of health appointed a health officer as required by Section 2117? If so, give his name and address.
2. How many meetings has the board held during the year?
3. Give number and character of nuisances abated by the board.
4. How many cases of contagious disease were quarantined by your board?
5. Have attending physicians failed to report contagious diseases?
6. Has the board brought any prosecutions during the year?
7. If so, for what cause and with what result?
8. Give estimated number of persons in the township who were vaccinated during the year.
9. What amount of money was spent for board of health purposes?
10. What suggestions have you to offer for increasing the efficiency of township boards of health?
11. Give name of officer or member of the board who can be communicated with by telephone.

Reports were received from 1,012, or 75.8 per cent of the entire number, a little better than for last year.

Only a summary of these reports can be published, but this will fairly indicate the amount of sanitary work being done in the rural districts.

TOWNSHIP HEALTH OFFICER.

Six hundred and twenty-eight, of the 1,012 boards reporting, have appointed a health officer.

MEETINGS OF THE BOARDS.

Six hundred and seventy-five of the boards reporting held meetings during the year.

NUISANCES ABATED.

Four hundred and eighty-five nuisances were abated by 152 different boards of health.

CONTAGIOUS DISEASES REPORTED.

Contagious diseases were reported and were quarantined by the board of health in 582 townships. In 331 townships no contagious diseases were reported during the year. The contagious or infectious diseases reported were as follows: Smallpox, 1,286 cases; diphtheria, 630 cases; scarlet fever, 1,339 cases; typhoid fever, 694 cases; whooping cough, 437 cases, and measles, 786 cases.

PHYSICIAN'S REPORTS OF CONTAGIOUS DISEASES.

In 134 townships physicians failed to report cases of contagious diseases.

PROSECUTIONS.

Seventeen boards brought prosecutions during the year.

VACCINATIONS.

Twenty two thousand seven hundred and twenty persons (estimated) were vaccinated in 288 townships.

MONEY SPENT FOR BOARD OF HEALTH PURPOSES.

Only 469 township boards of health reported an expenditure of money for sanitary purposes. The amount spent was \$40,690.50, an average of about \$87.00 for each township. The largest amount spent in any one township was \$2,590.76. Most of this sum was spent in combating smallpox. The least amount spent was one dollar.

On the whole it must be admitted that sanitary matters in rural districts are not receiving such attention as they deserve.

ABSTRACT OF REPORTS

OF

DEATHS AND THEIR CAUSES

IN THE FOLLOWING

Cities, Villages and Townships in Ohio

FOR THE

Year Ending December 31, 1902.

ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING JANUARY, 1902.

	Population.	Total deaths.	Annual rate per 1,000.	Total under 1 year.	Total under 5 yrs. and over 1 yr.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.		
Akron	42,728	3810.19	7	5	12	1	1	1	1	1	1	1	1	1	2	1	1	1	6	2	2	23	8	3	1	1	1	1	1	1	1	1	1	1	4	
Alliance	8,974	1925.41	5	3	4	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	2	10	10	1	1	1	1	1	1	1	1	1	1	1	1	
Ashtabula	12,949	1715.76	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	15	15	1	1	1	1	1	1	1	1	1	1	1	1	
Bellaire	9,912	89.68	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	4	4	1	1	1	1	1	1	1	1	1	1	1	1	
Bellevue	6,649	614.21	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	9	9	1	1	1	1	1	1	1	1	1	1	1	1	
Bowling Green	5,067	614.21	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	9	9	1	1	1	1	1	1	1	1	1	1	1	1	
Bucyrus	6,660	1318.89	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	6	6	1	1	1	1	1	1	1	1	1	1	1	1	
Cambridge	6,441	710.02	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Canal Dover	5,422	613.27	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Canton	30,667	155.88	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	9	9	1	1	1	1	1	1	1	1	1	1	1	1	
Chillicothe	12,976	1412.95	66	66	66	9	9	9	9	9	9	9	9	9	9	9	9	9	4	4	4	39	39	1	1	1	1	1	1	1	1	1	1	1	1	
Cincinnati	225,902	556.20	50	50	50	26	26	26	26	26	26	26	26	26	26	26	26	26	91	91	91	64	64	1	1	1	1	1	1	1	1	1	1	1	1	1
Circleville	6,991	1424.03	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	
Cleveland	381,798	450.13	88	88	88	20	20	20	20	20	20	20	20	20	20	20	20	20	64	64	64	21	21	1	1	1	1	1	1	1	1	1	1	1	1	1
Columbus	125,560	12712.14	13	13	13	8	8	8	8	8	8	8	8	8	8	8	8	8	34	34	34	5	5	7	7	1	1	1	1	1	1	1	1	1	1	
Conneaut	7,133	59.97	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	
Coshocton	6,473	12117.01	16	16	16	1	1	1	1	1	1	1	1	1	1	1	1	1	32	32	32	5	5	1	1	1	1	1	1	1	1	1	1	1	1	
Dartmouth	85,333	1914.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Defiance	7,579	914.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Delaware	7,940	1522.67	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
East Liverpool	16,485	2115.29	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Ellettsville	8,791	618.19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Findlay	17,613	1510.22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fostoria	7,730	1015.52	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Freemont	8,439	618.53	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gallons	7,282	914.84	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gallipolis	5,432	48.84	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Cities over 5,000
population.
Census 1900.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Ironton	11,888	228,19,21	24	20	32	1	10	3	3	1	...	2	7	...	37	9	27	64	5	2	4	8	5	9	2	29	...	9	6										
Kenton	6,852	72,10,51	4	1	8	...	...	...	...	...	...	...	...	1	...	15	4	11	40	17	12	5	4	10	23	10	1	16	5	1	
Lancaster	8,991	174,19,35	22	10	30	3	11	7	...	...	...	...	...	1	...	30	7	22	101	17	5	4	3	5	3	10	...	3	1	6				
Lima	21,723	387,17,82	41	28	89	11	16	7	...	...	...	...	...	1	...	95	16	165	168	21	26	7	5	4	10	23	10	1	16	3	6			
Lorain	16,928	184,11,48	45	17	29	1	16	7	...	...	...	...	...	1	...	95	16	165	168	21	26	7	5	4	10	23	10	1	16	3	6			
Mansfield	17,640	199,7,87	11	7	26	2	5	5	...	...	...	...	...	1	...	26	5	9	71	8	3	1	1	7	16	4	...	33	24	26	33			
Marion	13,348	174,13,03	21	13	33	1	5	1	...	...	...	...	...	1	...	26	5	9	71	8	3	1	1	7	16	4	...	33	24	26	33			
Martin	11,862	172,14,50	18	9	30	1	6	3	...	...	...	...	...	1	...	26	5	21	72	5	2	4	1	3	14	1	...	15	6	28	19			
Massillon	7,660	100,7,76	28	16	22	7	6	1	3	1	...	26	5	21	72	5	2	4	1	3	14	1	...	15	6	28	19							
Martins Ferry	11,944	126,10,55	18	8	9	3	...	...	...	...	...	...	...	1	...	27	7	11	73	10	5	3	7	1	12	4	...	13	3	15	14	
Massillon	9,215	131,14,30	30	6	26	2	4	...	...	...	...	...	...	1	...	27	7	11	73	10	5	3	7	1	12	4	...	13	3	15	14		
Mt. Vernon	6,633	79,11,90	12	9	12	...	...	...	...	...	...	...	...	3	1	...	5	8	4	49	6	2	3	3	15	3	1	5	13	5	7
Nelsonville	3,421	75,13,85	10	4	17	...	...	...	...	...	...	...	...	4	...	18	5	8	12	1	1	1	3	3	15	3	1	5	13	5	7
Newark	18,157	276,15,20	23	16	43	7	1	...	...	...	...	...	...	2	...	58	12	26	117	20	8	3	5	10	21	11	...	17	4	15	19		
*Newburg	5,969	64,10,30	2	2	8	...	...	...	...	...	...	...	...	1	...	15	6	9	32	2	1	1	2	5	14	1	...	3	...	9	4
N. Philadelphia	6,213	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
*Niles	7,488	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
*Norwalk	7,074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Norwood	8,480	84,12,97	20	5	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Painesville	5,024	65,12,95	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Piqua	12,172	123,10,19	12	9	14	1	6	...	...	...	...	...	...	5	...	27	11	16	61	7	2	14	5	5	16	9	...	10	13	9	...		
Portsmouth	17,870	278,15,55	46	35	70	4	4	...	13	63	11	34	134	9	2	14	5	4	26	14	...	20	11	18	...							
St. Marys	5,359	57,10,65	6	2	13	4	2	...	...	...	...	...	...	1	...	16	8	6	27	...	...	...	...	...	...	...	...	...	...	...	...
Salem	7,582	62,8,18	3	1	7	...	...	...	...	...	...	...	...	1	...	22	5	9	32	2	6	1	1	4	3	1	...	8	1	6	...
Sandusky	19,064	245,12,45	36	13	28	2	8	2	...	...	...	...	...	10	...	53	10	18	106	20	2	4	22	5	29	1	11	43	15	16	...			
Stidney	5,688	54,9,49	6	5	7	...	...	...	...	...	...	...	...	1	...	21	5	10	19	1	4	2	1	1	5	...	3	...	2	5	1
Springfield	38,253	536,14,00	65	38	54	1	6	4	...	...	...	...	...	3	...	106	21	76	300	44	43	10	14	14	45	12	...	46	50	26	38			
*Stevensville	14,349	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tiffin	10,989	140,12,75	29	8	21	5	6	...	...	...	...	...	...	1	...	3	28	7	18	67	4	3	2	6	15	5	...	8	16	8	9		
Toledo	131,822	1,736,13,17	320	109	353	70	40	1	8	...	52	6	277	71	155	745	62	47	40	46	22	102	31	1	129	194	153	203						
Troy	5,881	74,12,58	7	9	13							
Urbana	6,808	87,12,78	11	1	13	1	...	6	27	5	8	40	3	...	1	1	5	13	2	...	3	3	8	...							
Van Wert	6,422	79,12,30	4	2	27	8	11	36	2	9	1	1	12	2	...	4	7	10	...							
Warren	8,529	102,11,90	14	9	18	1	5	2	...	...	...	...	...	1	...	5	23	8	10	36	2	9	1	1	12	2	...	4	7	10	...			
Washington C.H.	5,751	87,15,13	15	12	18	1	2	1	1	...	5	...	23	3	21	53	11	7	1	2	4	1	...	9	1	7	...							
*Wellston	8,946							
Wellsville	6,136	118,19,23	17	13	26	3	5							
*Wooster	6,063							
Xenia	8,696	152,17,48	6	14	33	1							
Youngstown	44,885	763,17,02	131	85	170	12	14	8	...	4	1	9	3	11							
Zanesville	23,538	383,16,31	36	26	98	32	6	1	1	1	3							
Total	1,756,154	25,846,14,72	4463	2169	4417	522	346	105	18	974	196	27	123	25	151	6	853	121	4730	1022	2678	12,214	1054	1079	632	637	463	3042	707	45	2433	2318	1691	1987

*Not reported. †Canal Dover, 8 months. ‡Greenville, 9 months.

ABSTRACTS OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.

	Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Dis-	Total Violence.	Premature and Still Births.
Ada	2,576	57	21.96	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Addyston	1,513	18	11.16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anna	451	6	13.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apple Creek	387	5	12.92	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arcadia	425	2	4.70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arcanum	1,225	18	14.69	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Archbold	958	8	8.35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arlington	738	9	12.19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ashley	700	7	10.00	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Athens	3,066	49	15.98	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Attica	694	5	7.34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Avon	500	16	32.00	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bainbridge	954	4	4.11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bairdstown	298	8	26.77	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barberton	4,354	76	17.45	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barnesville	3,721	55	15.34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beaver	932	2	7.63	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beaver Dam	477	5	10.46	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bedford	1,486	16	10.76	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belle Center	962	12	12.47	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belleville	1,039	4	3.84	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bellevue	4,101	46	11.19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belpre	900	6	6.66	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benton Ridge	359	4	11.11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bethel	850	13	15.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beverly	712	11	15.46	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blakeslee	239	2	8.36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blanchester	1,788	16	8.99	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bloomington	636	5	7.86	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bloomville	819	7	8.54	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

251 Villages.
Census 1900.

[illegible]

ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

	Population.	Total Deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phtisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
Delphos	4,517	119	11.95	11	14	14	1	1	2			2				2		2		10	2	5	24	4	2	1		6	2			3	5	110	
Deshler	1,628	4	2.45		4	4																		1											
Dillonvale	2,000	14	7.00		12	12	1	8																1											
Doylstown	1,057	8	7.56		1	1																		1											
Dresden	1,600	28	17.50		11	15	1	5																1											
Dunkirk	1,222	13	15.55		4	1	2																	4											
Dupont	370	9	5.40		9	9																		1											
East Cleveland	2,757	9	3.28		3	3		3																1											
East Palestine	2,493	17	6.81	3	3	3																													
East Springfield	225	1	0.44		2	2																													
Eaton	3,155	10	3.16		1	1																													
Edon	740	13	17.16		1	1																													
Elmore	1,025	9	8.78		2	2																													
Elmwood Place	2,532	32	12.63	8	8	8	1	4																2											
Enreka	169	2	11.83		1	1																													
Farmersville	440	4	9.99	2	2	2																													
Fayette	886	4	4.57																																
Felcity	695	6	8.63																																
Fernbank	310	3	9.67																																
Florida	276	6	21.71	1	2	2	1																												
Forest	1,155	8	6.92		1	1																													
Fort Jennings	322	9	9.31																																
Fort Recovery	1,097	8	7.29		2	2																													
Franklin	2,724	35	12.84	5	3	3	2																												
Frankfort	717	6	8.36		1	1																													
Fredericksburg	511	11	9.78		3	3																													
Geneva	2,342	38	16.25	5	2	2	4																												
Georgetown	1,529	18	11.77	1	1	1	3																												
Germantown	1,702	16	9.40		1	1	3																												
Geyer	250	6	24.00		2	2																													

321 Villages.
Census 1900.

ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902—Continued.

Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Dis-	Total Violence.	Premature and Still Births.		
Lucas	306	619.60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	1	1	1	1	1	1	1	1	1	1	1	1	4		
Lynchburg	907	8.82	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	5	5	1	1	1	1	1	1	1	1	1	1	1	1	1		
McArthur	941	7.43	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1		
McComb	1,195	9.753	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1		
McConnellsville	1,825	29.15.89	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Madisonville	3,140	41.13.05	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	15	15	4	4	7	15	1	1	2	1	3	2	1	3	4	1		
Magnolia	431	2.4.64	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	4	4	7	15	1	1	2	1	3	1	1	1	1	1		
Malinta	357	3.8.40	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	4	4	7	15	1	1	2	1	3	1	1	1	1	1		
Manchester	2,003	43.21.46	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	18	18	8	8	10	10	2	2	5	1	2	5	1	1	1	1		
Mason	629	7.11.12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	1	3	3	1	1	2	1	2	1	1	1	1	1		
Maumee	1,856	19.10.24	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	1	1	3	3	1	1	2	1	2	1	1	1	1	1		
Mechanicsburg	1,617	29.17.93	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6	6	4	4	12	12	4	4	2	2	4	1	4	2	5	1	4	
Medina	2,332	27.12.09	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	6	6	4	4	1	1	2	1	2	1	1	1	1	1	1	
Melrose	383	3.7.83	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	4	3	3	1	1	1	1	1	1	1	1	1	1	1	
Mentor	624	9.14.42	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1	
Miamisburg	3,941	40.10.12	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	4	4	3	3	21	21	2	2	1	1	1	1	1	1	1	1	1	
Milan	553	8.12.25	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	
Middleburg	400	3.17.50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	
Middleport	2,799	49.17.50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	
Milford Center	682	6.8.79	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	16	16	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	
Miller City	564	1.6.13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	
Millbury	284	1.3.52	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	4	2	2	2	2	1	1	1	1	1	1	1	1	1	
Millersburg	1,998	37.13.51	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	2	2	1	1	1	1	1	1	1	1	1	1	
Mineral Ridge	831	13.15.64	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	2	2	5	5	1	1	1	1	1	1	1	1	1	1	1	
Mineral City	1,220	11.9.01	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1	1	
Minerva	1,200	10.9.16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Minster	1,465	29.19.79	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Morrow	869	15.17.26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Mt. Cory	312	1.3.20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	2	2	9	9	1	1	2	2	1	1	1	1	1	1	1	1
Mt. Healthy	1,354	17.12.55	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	6	6	2	2	9	9	1	1	2	2	1	1	1	1	1	1	1	1

321 Villages.
Census 1900.

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
Republic	656	10,677	16.27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reynoldsburg	339	14,410	42.00	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richmond	373	3,804	10.19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richwood	1,610	3,182	1.98	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ridgeway	447	3,677	8.22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ripley	2,248	10,444	4.64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rising Sun	760	3,474	4.57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockport	2,638	24,117	9.17	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rocky Ridge	414	5,120	12.37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rogers	284	2,696	9.49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rushville	257	7,788	30.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sabina	1,481	19,128	12.82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Bernard	3,384	60,172	17.72	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Clairsville	1,201	13,108	10.82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Paris	1,222	14,118	11.46	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salesville	286	1,349	4.71	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salineville	2,353	26,116	11.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Savannah	290	9,316	31.03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Selo	1,214	6,494	5.34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scott	547	4,731	8.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shreve	1,043	10,958	10.53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Smithfield	503	7,139	13.91	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Somerset	1,124	7,622	6.78	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bloomfield	223	2,896	12.96	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Charleston	1,696	10,912	6.43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Lebanon	484	7,147	14.77	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Point	281	4,142	14.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Springboro	433	7,161	16.38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spring Valley	522	7,134	13.40
Stryker	1,206	13,107	10.77

321 villages.
Census 1900.

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

583 Townships. Census 1900.	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.	
Adams—																																				
Franklin	1,572	9	5.72	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green	2,046	1	.48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Melgs	2,350	7	2.97	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Allen																																				
Amanda	1,354	4	2.88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bath	1,517	20	13.18	2	1	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marlon	2,954	33	14.44	.....	.....	6	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	1,537	4	2.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richard	1,839	1	.54	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shawnee	1,433	6	4.01	2	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spencer	1,142	3	2.62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sugar Creek ..	1,038	9	8.78	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Asland—																																				
Green	1,206	18	14.92	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hanover	941	1	1.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson	923	12	13.00	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milton	869	9	10.35	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mohican	1,123	9	8.01	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Orange	1,201	4	3.33	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perry	1,124	10	8.89
Ruggies	630	15	23.80
Sullivan	808	8	9.90																	

583 Townships.
Census 1900.

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.	
Lake—	706	3	4.25			1			1												2		2													
Concord	1,135	6	5.29			1															1		1													
Kirtland	1,853	24	12.95			7															1		1													
Painesville	1,687	14	8.29	1	4	7		2													1		1													
Perry	1,687	14	8.29	1	4	7		2													1		1													
Willoughby	1,885	10	5.31			1															1		1													
Lawrence—																																				
Hamilton	659	2	3.03			1															1		1													
Perry	1,821	7	3.84	1	1	1																	1													
Upper	1,849	1	.54																				1													
Windsor	2,229	31	13.85	5	7	5	3														10		7	16	1											
Licking—																																				
Bennington	702	4	5.65			1															1		1													
Burlington	922	15	16.29																				1													
Eden	620	3	4.84																		1		1													
Etna	955	17	17.80			2															1		1													
Franklin	676	4	5.92			1															1		1													
Granville	974	8	8.21			2	1														1		1													
Graville	824	10	12.14			3																	1													
McKean	876	9	10.27	1		2																	1													
Newton																																				
Logan—																																				
Bloomfield	828	8	9.65	2		4															3		1	2	1											
Jefferson	1,121	3	2.68			3																	1													
McArthur	940	5	5.32			3																	1													
Miami	657	7	10.65	1	4	2	1																1													
Perry	1,047	5	4.78			1																	1													
Union	774	5	6.46	1	1	3																														
Zane	636	8	12.58			3																														

583 Townships.
Census 1900.

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Diseases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
Miami—	1,506	3	1.88	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bethel	1,124	2	1.78	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Elizabeth	1,228	11	8.96	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monroe	2,316	23	12.52	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Newberry	1,980	20	10.10	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Newton	1,800	3	1.67	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Stanton	1,184	2	1.68	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Union	2,893	2	2.45	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Washington ..	997	14	14.04	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monroe—	1,026	7	6.82	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Benton	1,026	7	6.82	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ohio	1,750	4	2.29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Summit	685	7	10.07	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Montgomery—	1,676	22	13.13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Butler	1,658	24	14.48	3	7	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
German	3,837	1	.27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Harrison	1,816	7	3.85	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jackson	2,337	1	.43	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Madison	2,310	16	6.93	2	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Madrider	2,957	7	2.37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Van Buren ..	953	4	4.20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Morgan—	839	6	7.15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Center	839	6	7.15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Deerfield	1,426	6	4.21	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Homer	585	5	8.55	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Manchester ..	825	3	3.64	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Malta	1,078	13	12.06	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Meigsville ..	357	2	5.60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Morgan	1,007	8	7.94	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pennar	1,007	8	7.94	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Windsor	1,745	3	1.71	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
York	751	3	3.99	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

583 Townships.
Census 1900.

[illegible]

ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Continued.

	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic Diseases.	Croup and Diphtheria.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Diseases.	Total Violence.	Premature and Still Births.
Pike—	1,068	6	5.62	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Sunfish Union	778	3	3.86	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Portage—	652	17	26.08	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Atwater	688	5	7.27	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Charlestown ..	1,101	5	4.53	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Deerfield	735	8	10.88	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Edinburg	670	8	11.94	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Freedom	738	15	20.33	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mantua	794	12	15.11	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nelson	990	3	3.03	...	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ravenna	912	9	9.87	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Shalersville ...	672	1	1.49	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Streetsboro ...	978	7	7.16	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Peeble—	2,218	4	1.80	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dixon	1,257	22	17.50	4	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Harrison	1,255	7	5.58	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Israel	1,426	18	12.62	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jackson	1,426	18	12.62	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jefferson	1,426	18	12.62	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monroe	1,423	1	0.70	...	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monroe	918	25	27.23	5	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Somers	1,479	5	3.38	...	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Twin	1,465	3	2.05	...	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Putnam—	1,342	2	1.49	...	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jennings	1,827	7	3.83	...	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	1,366	5	3.66	...	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Palmer	1,366	5	3.66	...	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Perry	1,366	5	3.66	...	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

583 Townships.
Census 1900.

[illegible]

[illegible]

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES DURING 1902.—Concluded.

State, Census 1900.	Population.	Total deaths.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total Zymotic diseases.	Cerebro-Spinal Meningitis.	Cholera Infantum.	Cerebro-Spinal Meningitis.	Cholera Morbus.	Diarrheal Diseases.	Dysentery.	Malarial Fever.	Measles.	Puerperal Fever.	Scarlet Fever.	Tonsillitis.	Typhoid Fever.	Whooping Cough.	Total Constitutional Dis- eases.	Cancer.	Phthisis Pulmonalis.	Total Local Diseases.	Apoplexy.	Bright's Disease.	Bronchitis.	Convulsions.	Gastritis and Peritonitis.	Heart Disease.	Meningitis.	Pleurisy.	Pneumonia.	Total Developmental Dis- eases.	Total Violence.	Premature and Still Births.
Cities over 5,000...	1,756,154	25,846	14.73	4463	2169	4417	5922	246	105	18	974	196	27	123	25	151	6	853	121	4720	1023	2478	12,214	1054	1079	632	637	463	3042	707	45	2433	1368	1691	1987
321 villages	282,913	4,749	12.56	413	165	875	101	159	49	8	40	60	16	36	21	37	6	150	24	923	172	475	5,835	211	176	46	62	128	478	74	13	316	153	199	292
583 townships	754,519	6,148	6.82	346	228	1041	131	163	63	11	19	63	13	34	21	59	11	290	36	988	182	482	2,533	243	221	46	75	98	655	54	12	376	145	235	315
Total	2,893,586	35,743	12.35	5228	2562	6333	754	678	217	37	1033	319	56	193	67	247	23	1253	181	6591	1376	3635	16,302	1508	1476	724	777	687	4075	835	70	3125	2616	2125	2594

SUMMARY OF MORTALITY REPORTS.

The total number of deaths reported from all causes—excluding premature and still-births—by cities, villages and townships represented in the preceding tables was 35,743. The population of the cities, villages and townships represented (Census 1900) was 2,893,586, which is equal to an annual death rate of 12.35 per thousand living population represented.

The deaths in 2,737,504 living population (Census 1900) in 1901, were 34,477, equal to an annual death rate of 12.59 per thousand; while in 1900 the total number of deaths reported in 2,760,656 population was 34,296, equal to a mortality rate of 12.66 per thousand.

DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.

The number of deaths reported of children under five years of age (premature and still-born excluded) was 7,790, which is equal to 21.8 per cent. of the deaths from all causes, and a death rate of 2.7 per thousand population represented. The death rate of children under five the preceding year was 2.7 per thousand population represented.

ZYMOTIC DISEASES.

The total number of deaths reported from zymotic diseases was 6,333, which is equal to 17.7 per cent. of the deaths reported from all causes, and an annual rate of 2.2 per thousand of population represented.

The number of deaths reported the preceding year from zymotic diseases was 5,856, equal to a death rate of 2.1 per thousand population represented.

CROUP AND DIPHTHERIA.

The total number of deaths reported from croup and diphtheria was 754, which is equal to 2.1 per cent. of the deaths reported from all causes, and a death rate of .26 per thousand of the population represented.

The number of deaths reported the preceding year from these causes was 811, equal to a mortality rate of .29 per thousand of the population represented.

CHOLERA INFANTUM, CHOLERA MORBUS AND DIARRHOEA.

The total number of deaths reported from cholera infantum, cholera morbus and diarrhoea was 1,748, which is equal to 4.9 per cent. of the

deaths reported from all causes, and a mortality rate of .60 per thousand population represented.

The number of deaths reported the preceding year from these causes was 1,485, which is equal to a mortality rate of .54 per thousand of the population represented.

MEASLES, SCARLET FEVER AND WHOOPING COUGH.

The total number of deaths reported from measles, scarlet fever and whooping cough was 621, which is equal to 1.7 per cent. of the total number of deaths reported from all causes, and a mortality rate of .22 per thousand of the population represented.

The total number of deaths reported from these diseases during the preceding year was 480, equal to a mortality rate of .18 per thousand population represented.

TYPHOID FEVER.

The total number of deaths reported from typhoid fever was 1,253, which is equal to 3.5 per cent. of the total number reported from all causes, and a mortality rate of .44 per thousand population represented.

The number of deaths reported from this cause the preceding year was 1,143, equal to a mortality rate of .42 per thousand living population represented.

CONSTITUTIONAL DISEASES.

The total number of deaths reported from constitutional diseases was 6,591, which is equal to 18.4 per cent. of the deaths from all causes, and a mortality rate of 2.3 per thousand population represented.

The number of deaths reported from constitutional diseases the preceding year was 6,270, equal to a mortality rate of 2.3 per thousand population represented.

CANCER.

The total number of deaths reported from cancer was 1,376, which is equal to 3.8 per cent. of the deaths reported from all causes, and a mortality rate of .47 per thousand population represented.

The number of deaths reported from this cause the preceding year was 1,357, equal to a mortality rate of .49 per thousand population represented.

CONSUMPTION.

The total number of deaths reported from consumption was 3,635, which is equal to 10.2 per cent. of the deaths reported from all causes, and a mortality rate of 1.26 per thousand population represented.

The number of deaths reported from this cause the preceding year was 3,632, equal to a mortality rate of 1.32 per thousand population represented.

LOCAL DISEASES.

The total number of deaths reported for all local diseases was 16,302, which is equal to 45.6 per cent. of the deaths reported from all causes, and a mortality rate of 5.6 per thousand population represented.

The number of deaths reported from all local diseases the preceding year was 15,850, equal to a mortality rate of 5.8 per thousand population represented.

BRONCHITIS, PLEURISY AND PNEUMONIA.

The total number of deaths reported from bronchitis, pleurisy and pneumonia was 3,919, which is equal to 10.9 per cent. of deaths reported from all causes, and a mortality rate of 1.4 per thousand of the population represented.

In the preceding year there were 3,949 deaths reported from these causes, equal to a mortality rate of 1.5 per thousand population represented.

CONVULSIONS AND MENINGITIS.

The total number of deaths reported from convulsions and meningitis was 1,612, which is equal to 4.5 per cent. of the deaths reported from all causes, and a mortality rate of .56 per thousand population represented.

The number of deaths reported from these diseases the preceding year was 1,751, equal to a mortality rate of .64 per thousand population represented.

DEVELOPMENTAL DISEASES.

The total number of deaths from developmental diseases reported (excluding premature and still-births) was 2,616, which is equal to 7.3 per cent. of the deaths reported from all causes, and a mortality rate of .9 per thousand population represented.

During the preceding year there were 2,667 deaths reported from developmental diseases, equal to a mortality rate of .98 per thousand population represented.

VIOLENCE.

The total number of deaths reported from violence was 2,125, which is equal to 5.9 per cent. of the deaths reported from all causes, and a mortality rate of .73 per thousand population represented.

During the preceding year there were 1,997 deaths reported from violence, equal to a mortality rate of .7 per thousand population represented.

PREMATURE AND STILL-BIRTHS.

The total number of premature and still-births reported was 2,594 which is equal to 7.2 per cent. of the deaths reported from all causes, and a rate of .89 per thousand population represented.

During the preceding year there were 2,349 premature and still-births reported, equal to a rate of .86 per thousand population represented.

APPENDIX.

THIRD REPORT UPON
THE CONDITION

OF THE

PUBLIC WATER SUPPLIES
OF OHIO

WITH A DESCRIPTION OF NEW
SEWER SYSTEMS

AND

NOTES ON STREAM GAGING.

BY THE OHIO STATE BOARD OF HEALTH.

1902.

REPORT ON PUBLIC WATER SUPPLIES OF OHIO.

BY BENJ. H. FLYNN, ENGINEER. OHIO STATE BOARD OF HEALTH.

For the following report all information that concerns the permanent features of the several plants was secured by personal inspection and consultation while the figures for the several items which change from year to year were supplied, in the main, by the authorities in charge of the different waterworks. Blanks requesting this information were sent to all the waterworks in Ohio and, where this blank was not returned in a month or more, a letter was sent requesting that the information be supplied, and if no response was received, a second, and in some cases, a third letter was sent.

It is to be regretted that not enough interest is shown in the matter to supply these figures and it must be stated that for the following list of cities and towns the information given is not up-to-date for the items that change from year to year. With repeated requests no information could be secured from Akron, Bryan, Cambridge, Crestline, Cuyahoga Falls, East Cleveland, Franklin, Fremont, Greenfield, Greenwich, Hamilton, Lakewood, Mansfield, Middleport, Milford Center, Newburg, New Philadelphia, Niles, Perrysville, Pomeroy and West Alexandria.

Then again in a great many of the cities and towns that did send in reports the books have been so poorly kept by the employes of the waterworks that the information to be gained from them is very meagre indeed. Among the best kept books in the state are those of Oberlin, and the following table shows what invaluable information can be obtained from a waterworks whose books are properly kept.

TABLE I.—SUMMARY OF STATISTICS ON THE WATER SUPPLY

In Form Recommended by the New
Population, 1890,

Works constructed in 1887 by the village of Oberlin. Water taken from the East pumping well and pumped from there to an elevated tank. The pumps used 1,000,000 gallons

PUMPING		1894
Description of fuel used	{ a. Kind..... { b. Brand of Coal..... { c. Average price of coal per gross ton delivered	Bituminous { Cambridge, { run of mine { \$2 10 to { 2 25 { 237,780
Coal consumed per year—pounds.....		25,334,000
Total pumpage for the year, slip allowed.....		80
Average static head against which pumps work.....		80
Average dynamic head against which pumps work.....		107
Number of gallons pumped per pound of coal.....		6,220,000
Duty gallons pumped $\times 8.34 \times 100 \times$ dynamic head \div by lbs. of coal.....		1,158 08
Cost of pumping figured on pumping station expenses, namely.....		45 71
Per million gallons pumped.....		0.571
Per million gallons raised one foot (dynamic).....		3,966 38
Cost of pumping figured on total maintenance		156 56
Per million gallons pumped.....		1 96
Per million gallons raised one foot (dynamic).....		
FINANCIAL		
Maintenance		
RECEIPTS		
1 From consumers		
A. Water rates, fixtures		\$1,638 05
B. Water rates, meters		1,540 10
C. Net receipts for water, A and B.....		3,178 15
D. Miscellaneous (rent, repairs, sales, etc.).....		
E. Total from consumers		3,178 15
2 From public funds		
J. General appropriations		2,485 00
K. Gross receipts from all sources.....		5,663 15
Expenditures.		
AA. Management and repairs		1,556 38
BB. Interest on bonds		2,410 00
CC. Total maintenance for year		3,966 38
DD. Balance		1,696 77
K. Total		5,663 15
Construction.		
RECEIPTS		
Q. From balance of previous year		
R. From bonds issued		
T. Transferred from maintenance account		1,604 28
U. From other sources		632 11
V. Total		2,236 39
EXPENDITURES		
FF. Extensions of mains		1,136 70

OF OBERLIN, OHIO, FOR THE YEARS OF 1894 TO 1901, INCLUSIVE.

England Water Works Associations.

4376; 1900, 4082.

Branch of Vermilion River, conducted by gravity to a storage reservoir and are one horizontal, compound, duplex Deane and one duplex Deane, each of capacity.

1895	1896	1897	1898	1899	1900	1901
Bituminous	Bituminous	Bituminous	Semi-Bituminous	Semi-Bituminous	Semi-Bituminous	Semi-Bituminous
Cambridge, out and run of mine \$2 00 to 2 10	Cam., Pocohontas and run of mine \$2 00 to 2 10	Cam., Pocohontas and run of mine \$2 00 to 3 30	Run of mine and Pocohontas \$3 00	Run of mine and Pocohontas \$3 00	Run of mine and Pocohontas \$3 30	Pocohontas and run of mine \$3 70
298,930	290,000	240,000	272,000	360,000	282,000	303,000
27,998,000	24,584,700	30,295,200	29,210,000	38,759,000	36,560,000	40,374,000
80	80	80	80	80	80	80
80	80	80	80	80	80	80
93.7	84.8	126	108	108	130	133
6,249,000	5,656,000	8,422,065	7,165,000	7,183,000	8,650,000	8,890,000
\$1,230 97	\$1,220 00	\$1,320 00	\$1,400 00	\$1,483 00	\$1,418 35	\$1,572 00
43 97	49 00	43 50	47 90	38 00	38 80	38 90
0.55	0.61	0.54	0.60	0.47	0.48	0.48
4,597 60	4,692 70	5,187 81	4,923 08	5,269 76	4,368 88	4,493 54
164 20	190 80	171 20	168 50	136 00	119 50	111 30
2 05	2 38	2 14	2 11	1 70	1 50	1 36
\$2,104 02	\$ 1,784 21	\$1,914 31	\$1,580 00	\$1,410 00	\$760 00	\$886 85
1,739 95	2,180 00	2,457 00	2,990 73	3,735 78	4,584 97	5,120 00
3,843 97	3,964 21	4,371 31	4,570 73	5,145 78	5,344 97	6,006 85
167 00	644 96	190 85	133 31	515 88	499 22	111 35
4,010 97	4,609 17	4,562 16	4,704 04	5,661 66	5,844 19	6,118 20
2,873 23	2,700 00	3,685 00	4,676 89	3,963 78	3,400 00	4,010 01
6,884 20	7,309 17	8,247 16	9,380 93	9,625 44	9,244 19	10,128 21
1,897 15	2,092 70	2,605 27	2,424 00	3,130 22	2,723 88	2,846 00
2,700 45	2,600 00	2,582 54	2,499 08	2,139 54	1,645 00	1,647 54
4,597 60	4,692 70	5,187 81	4,923 08	5,269 76	4,368 88	4,493 54
2,286 60	2,616 47	3,059 35	4,457 85	4,355 68	4,875 31	5,634 67
6,884 20	7,309 17	8,247 16	9,380 93	9,625 44	9,244 19	10,128 21
.....	55 15	54 66	281 10	.....	497 74	391 80
5,000 00	.....	.....	.....	.....	.....	.....
2,266 52	2,616 17	1,059 35	1,457 85	2,070 92	2,395 27	2,634 67
715 70	444 25	519 75	299 35	453 76	290 25	335 72
7,982 22	3,115 57	1,633 76	2,038 30	2,524 68	3,183 26	3,362 19
677 09	1,458 67	588 19	1,180 10	795 02	14 66	1,066 31

TABLE I—Concluded.

	1894.
GG. Extensions of services	640 14
HH. Extensions of meters	459 55
II. Special (reservoirs, pumps, buildings)	
JJ. Total construction for year	2,236 39
KK. Balance	
V. Total	2,236 39
W. Net cost of works to date.....	69,207 37
X. Bonded debt to date	53,000 00
Y. Value of sinking fund at date	1,146 85
Z. Average rate of interest	4 55
Consumption.	
Estimated total population at date.....	4,500
Estimated population on lines of pipe.....	3,500
Estimated population supplied	1,800
Total consumption for the year	25,334,000
Passed through meters	1,123,000
Percentage of consumption metered	4.4
Average daily consumption	69,000
Gallons per day to each inhabitant	15
Gallons per day to each consumer	38
Gallons per day to each tap or service.....	175
Distribution.	
MAINS	
Kind of pipe	Cast iron.
Sizes	12 in.—4 in.
Extended during year—feet	2,200
Discontinued during year—feet	0
Total now in use—miles	7.55
Cost of repairs per mile	\$1 22
Number of leaks per mile	0.13
Length of pipe less than 4 in. diameter—miles.....	$\frac{1}{2}$
Number of hydrants added during the year.....	5
Number of hydrants now in use.....	70
Number stop-gates added during the year.....	2
Number stop-gates now in use.....	44
Number stop-gates smaller than 4 in.....	0
Number blow-off gates	3
Range of pressure on mains at center of town.....	27 to 32
SERVICES	
Kinds of pipe	Galvanized
Sizes	$\frac{3}{4}$ in.
Number of service-taps added during year.....	72
Number of service-taps now in use	399
Average length of service in feet.....	25
Average cost of service for the year	\$8.00
Number of meters added	31
Number of meters now in use.....	102
Percentage of service metered	26
Percentage of receipts from metered water (B÷C).....	48
Motors and elevators in use	0

TABLE I—Concluded.

1895.	1896.	1897.	1898.	1899.	1900.	1900.
338 43	.....	977 09	858 20	1,096 23	1,276 80	300 00
492 95	573 49	.....	.....	.....	.....	700 00
6,473 75	1,083 62	68 48	0	0	1,500 00	133 62
7,982 22	3,115 87	1,633 76	2,038 30	1,891 25	2,791 46	2,199 93
0	0	0	0	633 43	391 80	1,162 19
7,982 22	3,115 87	1,633 76	2,038 30	2,524 68	3,183 26	3,362 19
76,473 89	79,589 76	80,703 77	82,042 72	83,880 21	86,381 42	88,245 63
58,000 00	55,000 00	53,000 00	50,000 00	49,000 00	48,000 00	45,000 00
2,400 64	520 50	793 79	68 93	1,284 76	2,570 10	1,863 81
4 65	4 63	4 60	4 58	3 59	3 55	3 50
4,500	4,600	4,600	4,700	4,800	4,800	4,800
3,510	3,520	3,540	3,560	3,590	3,590	3,600
1,990	2,120	2,400	2,540	2,680	2,810	2,970
27,998,000	24,584,700	30,295,200	29,210,000	38,759,000	36,560,000	40,374,000
4,361,700	7,900,000	8,363,000	10,515,000	12,859,000	15,720,000	17,070,000
15.6	33.0	27.0	35.0	33.0	43.0	42.0
76,700	67,200	83,000	80,000	106,000	100,000	110,600
17	15	18	17	22	21	23
40	32	35	31	39	36	37
173	143	155	142	178	160	168
Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
12 in-4 in	12 in-4 in	12 in-4 in	12 in-4 in	12 in-4 in	12 in-4 in	12 in-4 in
1,121	1,730	2,143	1,668	2,324	0	1,820
0	0	0	0	0	0	0
7.80	8.10	8.50	8.80	9.25	9.25	9.70
\$1 40	\$0 00	\$0 00	\$0 00	\$0 00	\$0 00	\$0 10
0.26	0.00	0.00	0.00	0.00	0.00	0.10
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
2	2	6	3	4	0	2
72	74	80	83	87	87	89
1	3	3	2	3	1	3
45	48	51	53	56	57	60
2	2	2	2	2	4	2
2	2	2	2	2	2	2
27 to 32	27 to 32	27 to 32	27 to 32	27 to 32	27 to 32	27 to 32
iron and	lead.	Same.	Same.	Same.	Same.	Same.
1 to $\frac{3}{4}$ in	$\frac{3}{4}$ to 2 in	$\frac{3}{4}$ to 2 in	$\frac{3}{4}$ to 2 in	$\frac{3}{4}$ to 2 in	$\frac{3}{4}$ to 2 in	$\frac{3}{4}$ to 2 in
44	28	64	30	31	29	35
443	471	535	565	596	625	660
25	25	25	25	25	25	25
\$8 00	\$8 00	\$8 00	\$8 00	\$8 00	\$8 00	\$8 00
35	37	38	46	47	87	41
137	174	212	258	305	392	432
31	37	40	46	54	63	65
45	55	56	65	73	86	85
0	0	0	0	0	0	0

There are 292 cities and towns of the state which have been divided into three general classes: (1) Those that are urban and have public water supplies; (2) Those that are urban and have no such supplies; (3) Those that are not urban and have public water supplies. Of the first-class there are 185 with a total estimated population of 2,323,632; of the second class, there are 84 cities and villages with a total estimated population of 127,393; and of the third, there are 23 with a population of 15,497.

TABLE II.—SHOWING SIZE AND EXISTENCE OR NON-EXISTENCE OF PUBLIC WATER SUPPLIES IN THE TOWNS THROUGHOUT THE STATE.

URBAN AND WATER.			
TOWN.	Pop.	TOWN.	Pop.
Ada	2,675	Corning	1,371
Akron	45,753	Coshocton	7,033
Alliance	9,247	Crestline	3,356
Ashland	4,191	Cuyahoga Falls	3,300
Ashtabula	13,871	Dayton	90,156
Athens	3,155	Defiance	7,556
Barberton	5,000	Delaware (students not counted)	7,873
Batavia	1,044	Delphos	4,517
Bellaire	9,908	Dennison	3,930
Bellevue	7,130	East Cleveland	2,800
Berea	4,310	East Liverpool	17,590
Blanchester	2,505	East Palestine	2,628
Bluffton	1,906	Eaton	3,199
Bond Hill	1,881	Elmwood Place	2,550
Bowling Green	1,090	Elyria	9,427
Bridgeport	5,387	Evanston	1,730
Bryan	4,082	Fairport	2,253
Bucyrus	3,144	Findlay	17,425
Cadiz	6,677	Fort Recovery	1,080
Cambridge	1,762	Fostoria	7,862
Canal Dover	9,017	Franklin	2,723
Canal Fulton	5,812	Fremont	8,698
Canton	1,172	Galion	7,473
Carey	31,562	Gallipolis	5,619
Carrollton	1,858	Geneva	2,371
Carthage	1,280	Gibsonburg	2,032
Celina	2,619	Glendale	1,565
Chagrin Falls	2,838	Glenville	8,000
Chicago Junction	1,655	Glouster	2,400
Chillicothe	2,557	Granville	1,436
Cincinnati	13,313	Greenfield	4,282
Circleville	331,701	Greenville	5,506
Cleveland	7,078	Hamilton	25,183
Clyde	405,851	Harrison	1,409
College Hill	2,552	Hartwell	1,898
Collinwood	1,120	Hicksville	2,595
Columbiana	3,900	Hillsboro	4,718
Columbus	1,384	Hyde Park	1,900
Conneaut	133,042	Ironton	12,053
Continental	7,911	Jackson	4,742
	1,146		

TABLE II—Continued.

TOWN.	Pop.	TOWN.	Pop.
Kent	4,749	Plymouth	1,158
Kenton	7,111	Pomeroy	4,622
Lakeside	1,000	Port Clinton	2,530
Lakewood	1,000	Portsmouth	18,965
Lancaster	9,278	Ravenna	4,120
Lebanon	2,830	Reading	3,225
Leetonia	2,728	Ripley	2,201
Leipsic	1,781	Rockford	1,250
Lima	22,871	Sabina	1,561
Lisbon	3,540	St. Bernard	3,705
Lockland	2,739	St Marys	5,831
Logan	3,552	Salem	7,942
London	3,550	Salineville	2,356
Lorain	18,261	Sandusky	19,903
Loudonville	1,608	Scio	1,334
Louisville	1,384	Sebring	1,000
McConnelsville	1,836	Shelby	5,227
Madisonville	3,325	Shreve	1,049
Mansfield	18,473	Sidney	5,856
Marietta	14,363	South Brooklyn	2,450
Marion	12,569	Springfield	39,527
Martins Ferry	8,062	Steubenville	14,540
Marysville	3,495	Tiffin	11,027
Massillon	12,314	Tippecanoe City	1,751
Medina	2,264	Toledo	141,900
Middleport	2,697	Toronto	3,724
Middletown	9,522	Troy	6,158
Millersburg	2,013	Uhrichsville	4,720
Mineral City	1,285	Union City	1,280
Minerva	1,212	Upper Sandusky	3,311
Mingo Junction	3,174	Urbana	6,868
Monroeville	1,210	Van Wert	6,604
Montpelier	1,984	Versailles	1,497
Mt. Sterling	1,033	Wadsworth	1,802
Mt. Vernon	6,754	Wapakoneta	3,975
Napoleon	3,814	Warren	9,040
Nelsonville	5,594	Washington Court House...	5,753
Newark	18,934	Wauseon	2,166
Newburg	6,200	Wellington	2,099
New Comerstown	2,941	Wellston	8,779
New Philadelphia	6,564	Wellsville	6,326
New Richmond	1,825	West Carrollton	1,112
Niles	8,104	Westerville	1,489
North Baltimore	3,702	Willoughby	1,860
Norwalk	7,050	Winton Place	1,224
Norwood	6,900	Woodsfield	1,995
Oberlin	4,800	Wooster	6,095
Orrville	1,928	Wyoming	1,449
Oxford	2,026	Xenia	8,975
Painesville	5,078	Youngstown	47,218
Paulding	2,100	Zanesville	24,044
Piqua	12,788		
Plain City	1,469	Total	2,323,632

TABLE II—Continued.

URBAN—NO WATER.

TOWN.	Pop.	TOWN.	Pop.
Addyston	1,550	Marblehead	1,000
Antwerp	1,181	Maumee	1,898
Arcanum	1,243	Mechanicsburg	1,649
Barnesville	3,823	Miamisburg	4,139
Bedford	1,575	Milford	1,178
Belleville	1,058	Minster	1,530
Bradford	1,237	Mt. Gilead	1,568
Bradner	1,289	Mt. Healthy	1,400
Byesville	1,362	Murray City	1,170
Cardington	1,339	New Bremen	1,333
Cedarville	1,156	New Carlisle	1,002
Chardon	1,415	New Lexington	1,747
Cleves	1,348	New London	1,197
Coalgrove	1,328	New Straitsville	2,206
Coalton	1,658	North Amherst	1,780
Columbus Grove	1,986	Oak Harbor	1,621
Covington	1,794	Ottawa	2,443
De Graff	1,165	Payne	1,374
Delta	1,249	Pemberville	1,129
Deshler	1,731	Perrysburg	1,770
Doylestown	1,042	Pleasant City	1,150
Dresden	1,671	Prospect	1,014
Dunkirk	1,222	Richwood	1,685
Edgerton	1,058	Rockford	1,250
Elmore	1,000	Rocky River	1,400
Forest	1,160	Roseville	1,306
Garrettsville	1,164	St. Clairsville	1,213
Georgetown	1,540	St. Paris	1,237
Germantown	1,755	Shawnee	2,906
Girard	2,850	Somerset	1,123
Grafton	1,197	South Charleston	1,107
Holgate	1,258	Spencerville	1,996
Hubbard	1,177	Stryker	1,246
Huron	1,773	Vermilion	1,179
Irondale	1,224	Washingtonville	1,079
Jacksonville	1,111	Waverly	1,911
Jefferson	1,314	West Liberty	1,286
Kelley's Island	1,178	West Union	1,075
Larue	1,007	Williamsburg	1,037
Loveland	1,281	Wilmington	3,720
Lowellville	1,212	Yellow Springs	1,370
McComb	1,228		
Manchester	2,010	Total	127,393

TABLE II—Concluded.
NOT URBAN AND WATER.

TOWN.	Pop.	TOWN.	Pop.
Arlington Heights	387	Osborn	995
Attica	696	Oakwood	250
Caldwell	863	Piedmont	300
Dalton	677	Perrysville	511
Greenwich	843	Pleasant Ridge	950
Hiram	700	Richmond	600
Lynchburg	936	Sycamore	879
Mantua	756	Trotwood	225
Milan	658	Waynesburg	634
Milford Center	675	Waynesville	727
New Matamoras	862	West Alexandria	773
Oakley	600		
		Total	15,497

TOTALS.

No.	Division.	Pop.
185	Urban and Water	2,323,632
84	Urban and no Water	127,393
23	Not Urban and Water	15,497
	Grand Total	2,466,522

For further convenience the cities and towns having public water supplies have been divided into three classes: (1) Those whose supplies were installed previous to 1902 and of these but a very limited account is given; (2) Those who obtained their supplies in 1902; and (3) Those whose supplies are in the process of construction.

The following are the "old supplies" as they may be called:

AKRON, Summit Co. Supply from Summit Lake, Manning's Pond, and thirty-two 6 to 8 inch wells, 40 to 110 feet deep. Estimated population, 39,703. Estimated population accessible to mains, 29,769. Estimated population using water, 20,100. Average daily consumption, 3,000,000 gallons. Above for 1898. Reference 1898 report, p. 573.

ALLIANCE, Stark Co. Supply from Mahoning River, impounded and settled. Estimated population, 9,111. Estimated population accessible to mains, 7,289. Estimated population using water, 6,250. Average daily consumption, 1,633,000. Reference 1898 report, p. 522.

ARLINGTON HEIGHTS, Hamilton Co. Supply through Lockland from Wyoming, four 8 inch wells, 140 to 200 feet deep. Estimated population

387. Estimated population accessible to mains, 348. Estimated population using water, 220. Reference 1901 report, p. 465.

ASHLAND, Ashland Co. Supply from two dug wells, 30 and 36 feet in diameter and 16 and 18 feet deep. Estimated population, 4,139. Estimated population accessible to mains, 3,311. Estimated population using water, 2,000. Average daily consumption, 156,000 gallons. Reference 1898 report, p. 561; 1899 report, p. 707.

ASHTABULA, Ashtabula Co. Supply from Lake Erie. Estimated population, 13,871. Estimated population accessible to mains, 11,097. Estimated population using water, 5,060. Average daily consumption, 2,036,000 gallons. Reference 1898 report, p. 546.

ATHENS, Athens Co. Supply from one 30 foot dug well, 23 feet deep. Estimated population, 3,111. Estimated population accessible to mains, 2,955. Estimated population using water, 2,700. Average daily consumption, 314,000 gallons. Reference 1901 report, p. 432.

ATTICA, Seneca Co. Supply from one dug well, 28 feet diameter, 25 feet deep, with 300 feet of 8 inch tile leading to same. Estimated population, 696. Estimated population accessible to mains, 626. Estimated population using water, 350. Average daily consumption for 1898, 135,000 gallons. Reference 1898 report, p. 445.

BARBERTON, Summit Co. Supply from Ohio Canal. Estimated population, 4,700. Estimated population accessible to mains, 4,230. Estimated population using water, none for domestic purposes; for other uses, 1,825. Reference 1899 report, p. 697.

BATAVIA, Clermont Co. Supply from east branch Little Miami River, filtered through We-Fu-Go gravity mechanical filters. Estimated population, 1,037. Estimated population accessible to mains, 1,030. Estimated population using water, 600. Average daily consumption, 30,000 gallons. Reference 1900 report, p. 547.

BELLAIRE, Belmont Co. Supply from Ohio River. Estimated population, 9,910. Estimated population accessible to mains, 9,910. Estimated population using water, 8,000, not all for domestic purposes. Average daily consumption, 3,000,000 gallons. Reference 1898 report, p. 509.

BELLEFONTAINE, Logan Co. Supply from four 8 inch wells, 160 feet deep and 3 shallow drilled wells. Estimated population, 6,889. Estimated population accessible to mains, 6,200. Estimated population using water, 5,050. Average daily consumption, 900,000 gallons. Reference 1900 report, p. 549.

BELLEVUE, Sandusky and Huron Cos. Supply from reservoirs impounding surface water. Estimated population, 4,206. Estimated population accessible to mains, 3,575. Estimated population using water, 2,215.

Average daily consumption, 497,000 gallons. Reference 1898 report, p. 574.

BEREA, Cuyahoga Co. Supply from abandoned stone quarry and east fork of Rocky River. Estimated population, 2,508. Estimated population accessible to mains, 1,881. Estimated population using water, none for domestic purposes, 650 for other uses. Reference 1901 report, p. 433.

BLANCHESTER, Clinton Co. Supply from reservoirs impounding surface water. Estimated population, 1,847. Estimated population accessible to mains, 1,478. Estimated population using water, none for domestic purposes; for other uses, 750. Average daily consumption, 36,000 gallons. Reference 1900 report, p. 549.

BLUFFTON, Allen Co. Supply from eight 8-inch wells, 35 to 50 feet deep, abandoned quarry for emergency use. Estimated population, 1,833. Estimated population accessible to mains, 1,650. Estimated population using water, 1,100. Average daily consumption, 100,000 gallons. Reference 1898 report, p. 482.

BOND HILL, Hamilton Co. Supply from St. Bernard, four 8-inch wells, 130 feet deep. Estimated population, 1,085. Estimated population accessible to mains, 813. Estimated population using water, 410. Average daily consumption, 30,000 gallons. Reference 1901 report, p. 460.

BOWLING GREEN, Wood Co. Supply from one 9-inch well and eight 6-inch wells, 213 to 240 feet deep. Estimated population, 5,387. Estimated population accessible to mains, 4,041. Estimated population using water, 2,500. Reference 1901 report, p. 434.

BRIDGEPORT, Belmont Co. Supply from Martins Ferry, Ohio River. Estimated population, 4,082. Estimated population accessible to mains, 3,060. Estimated population using water, 2,500. Reference 1898 report, p. 510.

BRYAN, Williams Co. Supply from eight 4-inch wells, and five 8-inch wells, 95 to 112 feet deep. Estimated population, 3,118. Estimated population accessible to mains, 2,716. Estimated population using water, 1,300. Average daily consumption, 400,000 gallons. Above data for 1898. Reference 1898 report, p. 483.

BUCYRUS, Crawford Co. Supply from impounding reservoir on small tributary of Sandusky River. Estimated population, 6,677. Estimated population accessible to mains, 5,007. Estimated population using water, 2,165. Average daily consumption, 398,000 gallons. Reference 1898 report, p. 437; 1900 report, p. 60.

CADIZ, Harrison Co. Supply from five 6-inch wells, and one 8-inch well, 212 feet and 265 feet deep, respectively. Estimated population,

1,759. Estimated population accessible to mains, 1,671. Estimated population using water, 1,525. Average daily consumption, 40,000 gallons. Reference 1901 report, p. 434.

CALDWELL, Noble Co. Supply from dug well 15 feet in diameter and 20 feet deep, and from Duck Creek. Estimated population, 863. Estimated population accessible to water, 777. Estimated population using water, 600. Reference 1900 report, p. 435.

CAMBRIDGE, Guernsey Co. Supply from Wills Creek. Estimated population, 7,853. Estimated population accessible to mains, 5,500. Estimated population using water, none for domestic purposes, 700 for other uses. Average daily consumption, 400,000 gallons. Above data for 1899. Reference 1899 report, p. 707.

CANAL DOVER, Tuscarawas Co. Supply from six 6-inch wells, 51 to 75 feet deep. Estimated population, 5,617. Estimated population accessible to mains, 5,340. Estimated population using water, 3,340. Average daily consumption, 126,000 gallons. Reference 1899 report, p. 697.

CANTON, Stark Co. Supply from thirty-seven 4 to 6-inch wells, 275 feet deep, one 8-inch well, 166 feet deep, two 6-inch wells, 55 and 60 feet deep, west branch Nimishillen Creek, and Myers Lake. Estimated population, 31,115. Estimated population accessible to mains, 28,000. Estimated population using water, 25,300. Average daily consumption, 2,828,000 gallons. Reference 1899 report, p. 707.

CAREY, Wyandot Co. Supply from five 6-inch wells, 50 to 60 feet deep. Estimated population, 1,837. Estimated population accessible to mains, 1,650. Estimated population using water, 1,250. Average daily consumption, 150,000 gallons. Reference 1898 report, p. 443.

CARROLLTON, Carroll Co. Supply from five 8-inch wells, 100 feet deep. Estimated population, 1,275. Estimated population accessible to mains, 1,150. Estimated population using water, 1,080. Average daily consumption for 1899, 65,710 gallons. Reference 1899 report, p. 698.

CARTHAGE, Hamilton Co. Supply from three 8-inch wells and one 6-inch well, 136 to 138 feet deep. Estimated population, 2,589. Estimated population accessible to mains, 2,330. Estimated population using water, 1,660. Average daily consumption, 150,000 gallons. Reference 1901 report, p. 435.

CELINA, Mercer Co. Supply from six 6-inch wells, 160 to 310 feet deep. Estimated population, 2,826. Estimated population accessible to mains, 2,540. Estimated population using water, 1,180. Average daily consumption, 100,000 gallons. Reference 1901 report, p. 436.

CHAGRIN FALLS, Geauga Co. Supply from 10 springs impounded. Estimated population, 1,655. Estimated population accessible to mains, 1,570. Estimated population using water, 1,550. Average daily consumption, 75,000 gallons. Reference 1901 report, p. 437.

CHICAGO JUNCTION, Huron Co. Supply from seven 6-inch wells, 52 to 73 feet deep in drift. Estimated population, 2,453. Estimated population accessible to mains, 2,200. Estimated population using water, 1,340. Average daily consumption, 170,000 gallons. Reference 1901 report, p. 437.

CHILLICOTHE, Ross Co. Supply from one large well, 23 feet diameter and 26 feet deep, in bottom of which are eight 8-inch wells, 80 to 100 feet deep, all in drift. Estimated population, 13,313. Estimated population accessible to mains, 11,980. Estimated population using water, 9,250. Average daily consumption, 750,000 gallons. Reference 1901 report, p. 438.

CINCINNATI, supplying as part of the city, the villages of *Evanston*, *Hyde Park*, *Oakley*, and *Winton Place*, and portions of Hamilton Co. Supply from the Ohio River. Estimated population of group, 334,590. Estimated population accessible to mains, 317,850. Estimated population using water, 298,220. Average daily consumption, 40,789,000 gallons. Reference 1898 report, p. 504.

CIRCLEVILLE, Pickaway Co. Supply from one dug well 25 feet in diameter, 30 feet deep, and gallery 5x5 by 200 feet long. Estimated population, 7,078. Estimated population accessible to mains, 6,370. Estimated population using water, 4,500. Average daily consumption for 1901, 474,000 gallons. Reference 1898 report, p. 562.

CLEVELAND, Cuyahoga Co. Supply from Lake Erie. Estimated population, 393,810. Estimated population accessible to mains, 383,000. Estimated population using water, 374,000. Average daily consumption, 68,363,000 gallons. Reference 1898 report, p. 547.

CLYDE, Sandusky Co. Supply from one 10-inch well, 231 feet deep, in limestone. Estimated population, 2,534. Estimated population accessible to mains, 1,900. Estimated population using water, 1,800. Reference 1901 report, p. 438.

COLLEGE HILL, Hamilton Co. Supply from Cincinnati, through meter, Ohio River. Estimated population, 1,112. Estimated population accessible to mains, 1,000. Estimated population using water, 355. Average daily consumption, 8,000 gallons. Reference 1901 report, p. 439.

COLLINWOOD, Cuyahoga Co. Supply from Cleveland, through meter, Lake Erie. Estimated population, 3,900. Estimated population

accessible to mains, 2,300. Estimated population using water, 1,120. Average daily consumption, 8,400 gallons.

COLUMBIANA, Columbiana Co. Supply from one 30 foot well, 30 feet deep, in sandstone. Estimated population, 1,363. Estimated population accessible to mains, 1,290. Estimated population using water, 860. Average daily consumption for 1900, 21,000 gallons. Reference 1901 report, p. 440.

COLUMBUS, Franklin Co. Supply from Scioto River, Alum Creek, 13,097 feet of 42-inch brick and iron conduit; thirty-seven 6-inch wells, 20 to 58 feet deep, tributary to above conduit; one 25 foot dug well, and thirty-two 6-inch wells, 60 to 65 feet deep. Population, 125,560. Estimated population accessible to mains, 119,280. Estimated population using water, 98,000. Average daily consumption, 16,266,000 gallons. Reference 1898 report, p. 578.

CONNEAUT, Ashtabula Co. Supply from Lake Erie, filtered through Jewell gravity mechanical filters. Estimated population, 7,911. Estimated population accessible to mains, 5,940. Estimated population using water, 5,600. Average daily consumption, 1,000,000 gallons. Reference 1898 report, p. 550.

CONTINENTAL, Putnam Co. Supply from one 8-inch well, 75 feet deep, in limestone. Estimated population, 1,146. Estimated population accessible to mains, 460. Estimated population using water, 350. Average daily consumption in 1898, 45,000 gallons. Reference 1898 report, p. 483.

CORNING, Hocking Co. Supply from one 6-foot well, 22 feet deep, one well 9x18x32 feet deep, and one 8-inch well 45 feet deep. Estimated population, 1,386. Estimated population accessible to mains, 1,000. Estimated population using water: for domestic purposes, none; and for other uses, 12. Average daily consumption, 640 gallons. Reference 1901 report, p. 440.

COSHOCTON, Coshocton Co. Supply from one 30 foot well 37 feet deep. Estimated population, 6,753. Estimated population accessible to mains, 6,080. Estimated population using water, 4,750. Average daily consumption, 1,500,000 gallons. Reference 1899 report, p. 698.

CRESTLINE, Crawford Co. Supply from reservoirs impounding surface water and from three 6-inch wells, 140 to 180 feet deep. Estimated population, 3,208. Estimated population accessible to mains, 2,980. Estimated population using water, 1,540. Average daily consumption, 275,000 gallons. Data for 1898. Reference 1898 report, p. 444.

CUYAHOGA FALLS, Summit Co. Supply from one 6-inch and three 8-inch wells, 76 to 80 feet deep, in sandstone. Estimated population, 3,319. Estimated population accessible to mains, 2,500. Estimated population using water, 1,000. Reference 1901 report, pp. 28, 53, 55.

DALTON, Wayne Co. Supply from one 6-inch and 4-inch well, 200 feet deep, and from spring. Estimated population, 671. Estimated population accessible to mains, 570. Estimated population using water, 100. Average daily consumption, 2,300 gallons. Reference 1899 report, p. 698.

DAYTON, Montgomery Co. Supply from ninety-one 8-inch wells, 30 to 60 feet deep, in drift. Estimated population, 87,644. Estimated population accessible to mains, 78,900. Estimated population using water, 66,000. Average daily consumption, 5,989,000 gallons. Reference 1900 report, p. 550.

DEFIANCE, Defiance Co. Supply from Maumee River. Estimated population, 7,556. Estimated population accessible to mains, 6,000. Estimated population using water, 2,520. Average daily consumption, 1,117,000 gallons. Reference 1898 report, p. 476.

DELAWARE, Delaware Co. Supply from 25 foot well, 24 feet deep, with 4x6x293 feet gallery leading to same and one 6-inch well 255 feet deep, in rock. Estimated population, 7,902. Estimated population accessible to mains, 6,300. Estimated population using water, 4,300. Average daily consumption, 430,700 gallons. Reference 1901 report, p. 441.

DELPHOS, Allen and Van Wert Counties. Supply from eight 8-inch wells, 191 to 300 feet deep, in limestone. Estimated population, 4,517. Estimated population accessible to mains, 4,000. Estimated population using water, 2,500. Average daily consumption, 138,000 gallons. Reference 1898 report, p. 484.

DENNISON and UHRICHSVILLE, Tuscarawas Co. Supply from Big Stillwater Creek, filtered through Jewell gravity mechanical filters. Estimated population, 3,930 and 4,730—total, 8,660. Estimated population accessible to mains, 7,800. Estimated population using water, 6,200. Average daily consumption, 1,681,000 gallons. Reference 1899 report, p. 707; 1900 report, p. 68.

EAST CLEVELAND, Cuyahoga Co. Supply from Cleveland, Lake Erie. Estimated population, 2,800. Average daily consumption, 39,000 gallons.

EAST LIVERPOOL, Columbiana Co. Supply from the Ohio River. Estimated population, 17,038. Estimated population accessible to mains,

14,500. Estimated population using water, 12,000. Average daily consumption, 2,356,000 gallons. Reference 1898 report, p. 512.

EAST PALESTINE, Columbiana Co. Supply from one 22 foot well, 22 feet deep, in drift. Estimated population, 2,561. Estimated population accessible to mains, 2,450. Estimated population using water, 2,400. Average daily consumption, 150,000 gallons. Reference 1901 report, p. 442.

EATON, Preble Co. Supply from five springs collected in 24-inch tile gallery and ten 6-inch wells, 74 to 89 feet deep, all in drift. Estimated population, 3,177. Estimated population accessible to mains, 2,900. Estimated population using water, 2,200. Average daily consumption, 68,800 gallons. Reference 1900 report, p. 551.

ELMWOOD PLACE, Hamilton Co. Supply from Carthage, three 8-inch wells and one 6-inch well, 136 to 138 feet deep. Estimated population, 2,540. Estimated population accessible to mains, 2,300. Estimated population using water, 1,400. Average daily consumption, 30,000 gallons. Reference 1901 report, p. 436.

ELYRIA, Lorain Co. Supply from west branch of Black River. Estimated population, 9,110. Estimated population accessible to mains, 4,600. Estimated population using water, 3,600. Average daily consumption, 1,207,000 gallons. Reference 1898 report, p. 528.

EVANSTON, Hamilton Co. Supplied as portion of Cincinnati, Ohio River. Estimated population, 1,730.

FAIRPORT, Lake Co. Supplied as portion of Painesville, filter galleries on shore of Lake Erie, and Lake Erie. Estimated population, 2,253. Estimated population accessible to mains, 2,253. Estimated population using water, 1,500. Reference 1898 report, p. 557.

FINDLAY, Hancock Co. Supply from Blanchard River. Estimated population, 17,425. Estimated population accessible to mains, 11,300. Estimated population using water, 7,500. Average daily consumption, 787,000 gallons. Reference 1898 report, p. 476.

FORT RECOVERY, Mercer Co. Supply from two 8-inch wells, 208 and 214 feet deep, respectively, in limestone. Estimated population, 1,089. Estimated population accessible to mains, 1,050. Estimated population using water, 320. Reference 1900 report, p. 75.

FOSTORIA, Seneca Co. Supply from east branch of Portage River, impounded, and three 6-inch wells, 185 to 210 feet deep, and one 10-inch well, 200 feet deep. Estimated population, 7,796. Estimated population accessible to mains, 6,250. Estimated population using water, 2,600.

Average daily consumption, 545,000 gallons. Reference 1898 report, p. 529.

FRANKLIN, Warren Co. Supply from six 6-inch wells, 65 feet deep, in drift. Population, 2,724. Estimated population accessible to mains, 2,450. Estimated population using water, 1,700. Average daily consumption, 300,000 gallons. Data for 1900. Reference 1900 report, p. 551.

FREMONT, Sandusky Co. Supply from Sandusky River, 1.5 miles tile gallery, and five 10-inch wells, 300 feet deep. Estimated population, 8,180. Estimated population accessible to mains, 6,150. Estimated population using water, 3,600. Average daily consumption, 1,600,000 gallons. Data for 1898. Reference 1898 report, p. 441.

GALION, Crawford Co. Supply from one 28 foot well, 28 feet deep, and six 6-inch wells and two 8-inch wells, 60 to 90 feet deep. Estimated population, 7,378. Estimated population accessible to mains, 6,650. Estimated population using water, 2,500. Average daily consumption for 1900, 275,000 gallons. Reference 1901 report, p. 442.

GALLIPOLIS, Gallia Co. Infiltration wells in sand bar in Ohio River. Estimated population, 5,619. Estimated population accessible to mains, 5,300. Estimated population using water, 3,500. Average daily consumption, 256,000 gallons. Reference 1898 report, p. 555.

GIBSONBURG, Sandusky Co. Supply from two 10-inch wells, 290 and 311 feet deep, in limestone. Estimated population, 1,912. Estimated population accessible to mains, 1,800. Estimated population using water, 1,130. Average daily consumption, 30,700 gallons. Reference 1901 report, p. 443.

GLENDALE, Hamilton Co. Supply from one 3-inch and two 8-inch wells, 175 feet deep, in drift. Estimated population, 1,555. Estimated population accessible to mains, 1,400. Estimated population using water, 650. Average daily consumption, 250,000 gallons. Reference 1901 report, p. 444.

GLENVILLE, Cuyahoga Co. Supply from Cleveland, through meter, Lake Erie. Estimated population, 7,000. Estimated population accessible to mains, 6,300. Estimated population using water, 6,000. Average daily consumption, 345,000 gallons.

GLOUSTER, Athens Co. Supply from coal mine. Estimated population, 2,250. Estimated population accessible to mains, 1,720. Estimated population using water, none for domestic purposes; 190 for other uses. Reference 1901 report, p. 444.

GRANVILLE, Licking Co. Supply from three 4-inch wells, 45 to 55 feet deep, in drift. Estimated population, 1,431. Estimated population accessible to mains, 1,300. Estimated population using water, 1,200. Average daily consumption, 57,000 gallons. Reference 1899 report, p. 699.

GREENFIELD, Highland Co. Supply from 24 feet by 15 feet deep, infiltration well, on edge of Paint Creek. Estimated population, 3,827. Estimated population accessible to mains, 3,250. Estimated population using water, 1,380. Average daily consumption, 500,000 gallons. Data for 1899. Reference 1898 report, p. 556.

GREENVILLE, Darke Co. Supply from nine 6-inch wells, 50 to 57 feet deep, and six 8-inch wells, 46 to 54 feet deep, in drift. Estimated population, 5,506. Estimated population accessible to mains, 4,400. Estimated population using water, 3,700. Average daily consumption, 248,000 gallons. Reference 1900 report, p. 552.

GREENWICH, Huron Co. Supply from one 5 to 24 foot well, 35 feet deep and reservoir impounding surface water. Population, 849. Estimated population accessible to mains, 680. Estimated population using water, 350. Data for 1900. Reference 1901 report, p. 445.

HAMILTON, Butler Co. Supply from nineteen 6-inch wells, 75 to 135 feet deep, and three 8-inch wells, 75 to 135 feet deep, all in drift. Population 23,914. Estimated population accessible to mains, 22,800. Estimated population using water, 17,600. Average daily consumption, 1,818,000 gallons. Data for 1900. Reference 1900 report, p. 552.

HARRISON, Hamilton Co. Supply from Whitewater River and four 8-inch wells sunk 18 feet deep in bottom of 16 foot well, 18 feet deep. Estimated population, 1,409. Estimated population accessible to mains, 700. Estimated population using water, 550. Average daily consumption, 35,000 gallons. Reference 1898 report, p. 581.

HARTWELL, Hamilton Co. Supply from Wyoming, four 8-inch wells, 140 to 200 feet deep. Estimated population, 1,898. Estimated population accessible to mains, 1,500. Estimated population using water, 1,000. Average daily consumption in 1900, 41,000 gallons. Reference 1901 report, p. 464.

HICKSVILLE, Defiance Co. Supply from four 6-inch wells, 32 feet deep, and two 6-inch and one 3-inch wells, 132 feet deep. Estimated population, 2,595. Estimated population accessible to mains, 2,020. Estimated population using water, 1,280. Average daily consumption in 1898, 115,000 gallons. Reference 1898 report, p. 485.

HILLSBORO, Highland Co. Supply from ten 6-inch wells, 45 to 50 feet deep, in drift. Estimated population, 4,626. Estimated population

accessible to mains, 3,930. Estimated population using water, 2,700. Average daily consumption, 200,000 gallons. Reference 1898 report, p. 566.

HIRAM, Portage Co. Supply from two springs impounded. Estimated population, 680. Estimated population accessible to mains, 610. Estimated population using water, 420. Reference 1901 report, p. 446.

HYDE PARK, Hamilton Co. Supply from Cincinnati, Ohio River. Estimated population, 1,900.

IRONTON, Lawrence Co. Supply from Ohio River. Estimated population, 11,971. Estimated population accessible to mains, 10,800. Estimated population using water, 9,000. Average daily consumption in 1898, 1,400,000 gallons. Reference 1898 report, p. 514.

JACKSON, Jackson Co. Supply from eight 8-inch wells, 103 to 105 feet deep. Estimated population, 4,707. Estimated population accessible to mains, 4,000. Estimated population using water, 1,200. Average daily consumption, 135,000 gallons. Reference 1901 report, p. 446.

KENT, Portage Co. Supply from nine 6-inch wells, 62 to 83 feet deep, in drift, and Plum Creek, impounded. Estimated population, 4,749. Estimated population accessible to mains, 3,600. Estimated population using water, 2,600. Average daily consumption, 439,000 gallons. Reference 1901 report, p. 447.

KENTON, Hardin Co. Supply from basin excavated in limestone, 240x40x30 to 90 feet deep, with six 6-inch wells drilled 150 feet deep from surface, in bottom of this basin. Also, two 8-inch and one 10-inch well, 180 and 85 feet deep, respectively. Estimated population, 6,982. Estimated population accessible to mains, 5,200. Estimated population using water, 4,000. Average daily consumption, 700,000 gallons. Reference 1898 report, p. 567.

LAKESIDE, Erie Co. Supply from Lake Erie, filtered through two gravity sand filters. Estimated population, 1,000. Estimated population accessible to mains, 1,000. Estimated population using water, 1,000. Average daily consumption, 50,000 gallons. Reference 1901 report.

LAKEWOOD, Cuyahoga Co. Supply from Cleveland, Lake Erie. Estimated population, 3,500.

LANCASTER, Fairfield Co. Supply from 18 foot well, 20 feet deep, connected with gallery 3.5x3.75x1,100 feet long, all in drift. Estimated population, 9,135. Estimated population accessible to mains, 7,740. Estimated population using water, 4,150. Average daily consumption, 554,000 gallons. Reference 1898 report, p. 568.

LEBANON, Warren Co. Supply from four 6-inch wells, 96 to 104 feet deep, in drift. Estimated population, 2,849. Estimated population accessible to mains, 2,570. Estimated population using water, 2,400. Average daily consumption, 96,000 gallons. Reference 1900 report, p. 553.

LEETONIA, Columbiana Co. Supply from 17 springs and three 6-inch wells, 52 to 58 feet deep, in sandstone. Estimated population, 2,736. Estimated population accessible to mains, 2,200. Estimated population using water, 1,700. Average daily consumption, 135,000 gallons. Reference 1901 report, p. 448.

LEIPSIC, Putnam Co. Supply from four 6-inch and one 8-inch wells, 135 to 138 feet deep, in limestone. Estimated population, 1,781. Estimated population accessible to mains, 1,600. Estimated population using water, 400. Reference 1901 report, p. 450.

LIMA, Allen Co. Supply from Lost Creek, impounded, and twenty-one 8 and 10-inch wells, 118 to 400 feet deep. Estimated population, 22,297. Estimated population accessible to mains, 21,000. Estimated population using water, 19,800. Average daily consumption, 1,535,000 gallons. Reference 1898 report, p. 480.

LISBON, Columbiana Co. Supply from wells 115 feet deep. Estimated population, 3,435. Estimated population accessible to mains, 2,200. Estimated population using water, 1,500. Average daily consumption, 250,000 gallons. Reference 1898 report, p. 532.

LOCKLAND, Hamilton Co. Supply from Wyoming, four 8-inch wells, 140 to 200 feet deep. Estimated population, 2,717. Estimated population accessible to mains, 2,580. Estimated population using water, 1,300. Average daily consumption, 50,000 gallons. Reference 1901 report, p. 465.

LOGAN, Hocking Co. Supply from one 25 foot well, 26 feet deep, in drift. Estimated population, 3,516. Estimated population accessible to mains, 2,980. Estimated population using water, 1,570. Average daily consumption, 417,000 gallons. Reference 1901 report, p. 451.

LONDON, Madison Co. Supply from three 6-inch and two 8-inch wells, 85 to 175 feet deep. Estimated population, 3,531. Estimated population accessible to mains, 2,800. Estimated population using water, 2,000. Average daily consumption, 175,000 gallons. Reference 1901 report, p. 451.

LORAIN, Lorain Co. Supply from Lake Erie, filtered through six Jewell gravity mechanical filters. Estimated population, 17,144. Estimated population accessible to mains, 15,400. Estimated population

using water, 14,800. Average daily consumption, 2,056,000 gallons. Reference 1898 report, p. 552.

LOUISVILLE, Stark Co. Supply from two 8-inch wells, 110 feet deep, in drift. Estimated population, 1,379. Estimated population accessible to mains, 1,100. Estimated population using water, 930. Average daily consumption in 1899, 40,000 gallons. Reference 1899 report, p. 699.

LYNCHBURG, Highland Co. Supply from one dug well 16 feet diameter, 20 feet deep, and spring. Estimated population, 936. Estimated population accessible to mains, 740. Estimated population using water, 700. Average daily consumption in 1900, 25,000 gallons. Reference 1900 report, p. 553.

McCONNELSVILLE, Morgan Co. Supply from four 6-inch wells, 42 feet deep, in drift. Estimated population, 1,836. Estimated population accessible to mains, 1,650. Estimated population using water, 670. Reference 1899 report, p. 700.

MADISONVILLE, Hamilton Co. Supply from one 6-inch and two 8-inch wells, 150 feet deep, in drift. Estimated population, 3,233. Estimated population accessible to mains, 2,900. Estimated population using water, 1,400. Average daily consumption in 1900, 110,000 gallons. Reference 1900 report, p. 554.

MANSFIELD, Richland Co. Supply from ten 4-inch, five 5-inch, and four 10-inch wells, 150 to 210 feet deep, in rock. Estimated population, 17,223. Estimated population accessible to mains, 11,000. Estimated population using water, 9,750. Average daily consumption, 2,000,000 gallons. Data for 1899. Reference 1899 report, p. 700.

MARIETTA, Washington Co. Supply from the Ohio River. Estimated population, 13,815. Estimated population accessible to mains, 13,100. Estimated population using water, 11,000. Average daily consumption, 1,800,000 gallons. Reference 1899 report, p. 707.

MARION, Marion Co. Supply from reservoir impounding surface water, and ten 8-inch wells, 100 to 200 feet deep, in rock. Estimated population, 12,216. Estimated population accessible to mains, 7,300. Estimated population using water, 2,750. Average daily consumption in 1898, 543,000 gallons. Reference 1898 report, p. 582.

MARTINS FERRY, Belmont Co. Supply from the Ohio River. Estimated population, 8,062. Estimated population accessible to mains, 7,880. Estimated population using water, 7,600. Average daily consumption for Martins Ferry and Bridgeport, 2,543,000 gallons. Reference 1898 report, p. 510.

MARYSVILLE, Union Co. Supply from one 8-inch well, 145 feet deep, in limestone. Estimated population, 3,472. Estimated population accessible to mains, 3,130. Estimated population using water, 1,800. Average daily consumption, 650,000 gallons in 1900. Reference 1901 report, p. 451.

MASSILLON, Stark Co. Supply from six 6-inch wells, 200 feet deep, in rock. Industrial supply from impounding reservoir on Sippo Run. Estimated population, 12,129. Estimated population accessible to mains, 11,500. Estimated population using water, 9,600. Average daily consumption, 600,000 gallons. Reference 1899 report, p. 707.

MEDINA, Medina Co. Supply from two 8-inch wells, 100 feet deep, in rock. Auxiliary supply from well at electric light plant. Estimated population, 2,264. Estimated population accessible to mains, 550. Estimated population using water, 350. Reference 1901 report, p. 452.

MIDDLEPORT, Meigs Co. Supply from Pomeroy, Ohio River water filtered through Wetheril pressure mechanical filter. Population, 2,799. Estimated population accessible to mains, 2,100. Estimated population using water, 340. Reference 1901 report, p. 456.

MIDDLETOWN, Butler Co. Supply from one 20 foot well, 35 feet deep, in drift. Estimated population, 9,368. Estimated population accessible to mains, 7,900. Estimated population using water, 5,800. Average daily consumption, 1,200,000 gallons. Reference 1900 report, p. 527.

MILAN, Erie Co. Supply from impounding reservoir and well, 80x130x18 feet deep, in drift. Estimated population, 656. Estimated population accessible to mains, 520. Estimated population using water, 280. Average daily consumption, 13,000 gallons. Reference 1901 report, p. 452.

MILFORD CENTER, Union Co. Supply from one 8 foot well, 20 feet deep, in drift. Population, 682. Estimated population accessible to mains, 620. Estimated population using water, 430. Reference 1901 report, p. 453.

MILLERSBURG, Holmes Co. Supply from one 30 foot well, 28 feet deep, in drift. Estimated population, 2,006. Estimated population accessible to mains, 1,900. Estimated population using water, 1,700. Average daily consumption in 1899, 150,000 gallons. Reference 1899 report, p. 701.

MINERAL CITY, Tuscarawas Co. Supply from four springs impounded. Estimated population, 1,253. Estimated population accessible

to mains, 1,130. Estimated population using water, 670. Reference 1899 report, p. 702.

MINERVA, Stark Co. Supply from one well 9x9x10 feet deep on edge of creek, and one 6-inch well, 55 feet deep, in drift. Estimated population, 1,212. Estimated population accessible to mains, 1,150. Estimated population using water, 900. Average daily consumption, 125,000 gallons. Reference 1899 report, p. 701.

MINGO JUNCTION, Jefferson Co. Supply from filtering crib in bed of Ohio River. Estimated population, 3,174. Estimated population accessible to water mains, 2,860. Estimated population using water, 1,500. Average daily consumption, 300,000 gallons. Reference 1901 report, p. 454.

MONROEVILLE, Huron Co. Supply from west branch of Huron River. Estimated population 1,210. Estimated population accessible to mains, 1,100. Estimated population using water, 850. Average daily consumption, 85,000 gallons. Reference 1898 report, p. 533.

MONTPELIER, Williams Co. Supply from three 8-inch wells, 113 feet deep in drift. Estimated population 1926. Estimated population accessible to mains 1,730. Estimated population using water 1,700. Average daily consumption 400,000. Reference 1898 report, p. 485.

MT. STERLING, Madison Co. Supply from one 8-inch well, 145 feet deep, in rock. Estimated population, 1,033. Estimated population accessible to mains, 980. Estimated population using water, 970. Average daily consumption, 60,000 gallons. Reference 1901 report, p. 454.

MT. VERNON, Knox Co. Supply from nine 6-inch wells, four 4-inch wells, two 3-inch wells, and eleven 2-inch wells, all from 60 to 90 feet deep, in drift. Estimated population, 6,694. Estimated population accessible to mains, 6,360. Estimated population using water, 5,550. Average daily consumption, 1,000,000 gallons. Reference 1899 report, p. 702.

NAPOLEON, Henry Co. Supply from the Maumee River. Estimated population, 3,726. Estimated population accessible to mains, 3,000. Estimated population using water, 2,050. Average daily consumption in 1898, 193,000 gallons. Reference 1898 report, p. 478.

NELSONVILLE, Athens Co. Supply from one 30 foot well, 23 feet deep. Estimated population, 5,507. Estimated population accessible to mains, 5,280. Estimated population using water, 1850. Average daily consumption, 199,000 gallons. Reference 1898 report, p. 570.

NEWARK, Licking Co. Supply from north fork of Licking Creek, filtered through four Jewell mechanical gravity filters. Estimated popu-

lation, 18,934. Estimated population accessible to mains, 15,100. Estimated population using water, 6,600. Average daily consumption in 1899, 1,298,000 gallons. Reference 1899 report, p. 703.

NEWBURG, Cuyahoga Co. Supply from Cleveland, Lake Erie. Estimated population, 6,200.

NEWCOMERSTOWN, Tuscarawas Co. Supply from six 6-inch wells, 35 to 37 feet deep. Estimated population, 2,941. Estimated population accessible to mains, 2,941. Estimated population using water, 680. Average daily consumption, 250,000 gallons. For complete description see pages 479 of this report.

NEW PHILADELPHIA, Tuscarawas Co. Supply from ten 6-inch wells, 80 feet deep, and eight 6-inch wells, 30 feet deep, in drift. Estimated population, 6,037. Estimated population accessible to mains, 5,400. Estimated population using water, 2,870. Average daily consumption, 600,000 gallons. Data for 1899. Reference 1899 report, p. 703.

NEW RICHMOND, Clermont Co. Supply from the Ohio River. Estimated population, 1,870. Estimated population accessible to mains, 1,200. Estimated population using water, 340. Average daily consumption, 30,000 gallons. Reference 1901 report, p. 455.

NILES, Trumbull Co. Supply from nine 8-inch wells, 50 to 75 feet deep, in drift. Estimated population, 6,832. Estimated population accessible to mains, 4,780. Estimated population using water, 2,770. Average daily consumption, 421,000 gallons. Reference 1898 report, p. 585.

NORTH BALTIMORE, Wood Co. Supply from nine 6-inch wells, 125 feet deep, in rock. Estimated population, 3,631. Estimated population accessible to mains, 3,270. Estimated population using water, 1,250. Reference 1901 report, p. 455.

NORWALK, Huron Co. Supply from Norwalk Creek, impounded. Estimated population, 7,062. Estimated population accessible to mains, 6,360. Estimated population using water, 4,250. Average daily consumption, 1,416,000 gallons. Reference 1898 report, p. 534.

NORWOOD, Hamilton Co. Supply from two 10-inch wells, 260 feet deep, in rock. Population, 6,480. Estimated population accessible to mains, 6,160. Estimated population using water, 4,370. Data for 1900. Reference 1900 report, p. 556.

OAKLEY, Hamilton Co. Supply from Cincinnati, Ohio River. Supplied as portion of city. Estimated population, 600.

OAKWOOD, Montgomery Co. Supply from one 6-inch well, 50 feet deep. Estimated population, 250. Estimated population accessible to mains, 240. Estimated population using water, 110. Average daily consumption, 10,000 gallons. For complete description see page 479 of this report.

OBERLIN, Lorain Co. Supply from east branch, Vermilion River, stored. Estimated population, 4,800. Estimated population accessible to mains, 3,600. Estimated population using water, 2,970. Average daily consumption, 110,600 gallons. Reference 1898 report, p. 535.

ORRVILLE, Wayne Co. Supply from four 8-inch wells, 114 to 121 feet deep, in sandstone. Estimated population, 1,915. Estimated population accessible to mains, 1,720. Estimated population using water, 1,500. Average daily consumption, 200,000 gallons. Reference 1898 report, p. 704.

OSBORN, Greene Co. Supply from four 6-inch wells, 50 feet deep, in drift. Estimated population, 972. Estimated population accessible to mains, 880. Estimated population using water, 480. Reference 1900 report, p. 556.

OXFORD, Butler Co. Supply from one 20 foot well, 35 feet deep. Estimated population, 2,018. Estimated population accessible to mains, 1,900. Estimated population using water, 1,230. Average daily consumption, 91,000 gallons. Reference 1900 report, p. 557.

PAINESVILLE, Lake Co. Supply from infiltration galleries under edge of Lake Erie and Lake Erie. Estimated population, 5,051. Estimated population accessible to mains, 4,500. Estimated population using water, 4,400. Average daily consumption for Painesville, Richmond, and Fairport, 1,500,000 gallons. Reference 1898 report, p. 557.

PERRYSVILLE, Ashland Co. Supply from one 6-inch well, 93 feet deep, in sandstone. Estimated population, 514. Estimated population accessible to mains, 490. Estimated population using water, 450. Average daily consumption, 10,000 gallons. Data for 1899. Reference 1899 report, p. 704.

PIEDMONT, Harrison Co. Supply from two springs. Estimated population, 290. Estimated population accessible to mains, 150. Estimated population using water, 140. Reference 1899 report, p. 705.

PIQUA, Miami Co. Supply from Hydraulic from Miami and Erie Canal. Estimated population, 12,480. Estimated population accessible to mains, 10,000. Estimated population using water: none for domestic purposes; for other use, 6,700. Average daily consumption, 1,250,000 gallons. Reference 1900 report, p. 557.

PLAIN CITY, Union and Madison Counties. Supply from two 8-inch wells, 365 feet deep, in rock. Estimated population, 1,470. Estimated population accessible to mains, 1,330. Estimated population using water, 900. Average daily consumption, 250,000 gallons. Reference 1901 report, p. 456.

POMEROY, Meigs Co. Supply from the Ohio River, filtered through a Wetheril pressure mechanical filter. Population, 4,639. Estimated population accessible to mains, 3,480. Estimated population using water, 850. Average daily consumption of Pomeroy and Middleport, 85,000 gallons. Data for 1900. Reference 1901 report, p. 423.

PORT CLINTON, Ottawa Co. Supply from Lake Erie. Estimated population, 2,530. Estimated population accessible to mains, 2,400. Estimated population using water, 2,170. Reference 1898 report, p. 554.

PORTSMOUTH, Scioto Co. Supply from the Ohio River. Estimated population, 18,418. Estimated population accessible to mains, 16,600. Estimated population using water, 15,700. Average daily consumption, 2,500,000 gallons. Reference 1898 report, p. 517.

RAVENNA, Portage Co. Supply from Mussy Lake, Crystal Lake, and three 6-inch and one 4-inch wells, 152 to 281 feet deep, in sandstone. Estimated population, 4,062. Estimated population accessible to mains, 3,800. Estimated population using water, 3,400. Average daily consumption, 728,000 gallons. Reference 1898 report, p. 586.

READING, Hamilton Co. Supply from three 8-inch wells, 150 feet deep, in drift. Estimated population, 3,150. Estimated population accessible to mains, 3,000. Estimated population using water, 570. Average daily consumption, 80,000 gallons. Reference 1901 report, p. 458.

RICHMOND, Lake Co. Supply from Painesville, infiltration galleries under edge of Lake Erie and Lake Erie. Estimated population, 600. Estimated population accessible to mains, 570. Estimated population using water, 520. Reference 1898 report, p. 557.

RIPLEY, Brown Co. Supply from two 8-inch wells on bank of Ohio River, in sand and limestone. Estimated population, 2,201. Estimated population accessible to mains, 2,090. Estimated population using water, 980. Average daily consumption, 180,000 gallons in 1898. Reference 1898 report, p. 559.

ROCKFORD, Mercer Co. Supply from two 6-inch wells, 109 and 111 feet, in drift. Estimated population, 1,228. Estimated population accessible to mains, 920. Estimated population using water, 370.

Average daily consumption in 1900, 23,000 gallons. Reference 1901 report, p. 459.

SABINA, Clinton Co. Supply from two 6-inch and two 4-inch wells, 125 to 150 feet deep, in limestone. Estimated population, 1,521. Estimated population accessible to mains, 1,200. Estimated population using water, 710. Average daily consumption, 65,000 gallons. Reference 1901 report, p. 460.

ST. BERNARD, Hamilton Co. Supply from four 8-inch wells, 130 feet deep, in drift. Estimated population, 3,544. Estimated population accessible to mains, 3,370. Estimated population using water, 1,270. Average daily consumption for St. Bernard and Bond Hill in 1900, 197,000 gallons. Reference 1901 report, p. 460.

ST. MARYS, Auglaize Co. Supply from four 8-inch wells, 262 to 272 feet deep, in limestone. Estimated population, 5,595. Estimated population accessible to mains, 4,200. Estimated population using water, 1,950. Average daily consumption for 1898, 100,000 gallons. Reference 1898 report, p. 486.

SALEM, Columbiana Co. Supply from three 8-inch and three 6-inch wells, 265 feet deep, in rock. Estimated population, 7,942. Estimated population accessible to mains, 7,560. Estimated population using water, 5,600. Average daily consumption, 448,000 gallons. Reference 1901 report, p. 461.

SALINEVILLE, Columbiana Co. Supply from one 12 foot well, 49 feet deep, and one 20 foot well, 35 feet deep, and at times Yellow Creek. Estimated population, 2,351. Estimated population accessible to mains, 1,770. Estimated population using water, 780. Average daily consumption in 1900, 250,000 gallons. Reference 1901 report, p. 461.

SANDUSKY, Erie Co. Supply from Sandusky Bay, Lake Erie. Estimated population 21,000. Estimated population accessible to mains, 20,600. Estimated population using water, 18,900. Average daily consumption 4,810,000 gallons. Reference 1898 report, p. 446.

SCIO, Harrison Co. Supply from four 8-inch wells, 105 to 108 feet deep, in rock. Estimated population, 1,334. Estimated population accessible to mains, 1,000. Estimated population using water, 400. Average daily consumption, 186,000 gallons. Reference 1899 report, p. 705.

SEBRING, Mahoning Co. Supply from the Mahoning River. Estimated population, 1,000. Average daily consumption, 50,000. Reference, 1900 report, pp. 20, 99.

SHELBY, Richland Co. Supply from twelve 6-inch wells, 46 feet deep in drift. Estimated population, 4,956. Estimated population accessible to mains, 4,700. Estimated population using water, 3,300. Average daily consumption, 661,000 gallons. Reference 1899 report, p. 706.

SHREVE, Wayne Co. Supply from one 8-inch well, 175 feet deep, in rock. Estimated population, 1,046. Estimated population accessible to mains, 930. Estimated population using water, 540. Average daily consumption, 15,000 gallons. Reference 1899 report, p. 706.

SIDNEY, Shelby Co. Supply from six 8-inch wells, 120 feet deep, in limestone. Estimated population, 5,772. Estimated population accessible to mains, 5,500. Estimated population using water, 3,000. Average daily consumption, 500,000 gallons. Reference 1900 report, p. 558.

SOUTH BROOKLYN, Cuyahoga Co. Supply from Cleveland, Lake Erie. Estimated population, 2,450. Estimated population accessible to mains, 1,470. Estimated population using water, 440.

SPRINGFIELD, Clark Co. Supply from gallery, 32 inch by 48 inch by 200 feet long, leading to 30 foot brick well, 21 feet deep, also Buck Creek. Estimated population 38,889. Estimated population accessible to mains, 33,000. Estimated population using water, 25,700. Average daily consumption, 3,338,000 gallons. Reference 1900 report, p. 558.

STEUBENVILLE, Jefferson Co. Supply from the Ohio River. Estimated population, 14,453. Estimated population accessible to mains, 13,700. Estimated population using water, 13,300. Average daily consumption, 2,213,000 gallons. Reference 1898 report, p. 518.

SYCAMORE, Wyandot Co. Supply from two 6-inch wells, 190 and 210 feet deep. Estimated population, 866. Estimated population accessible to mains, 780. Estimated population using water, 560. Reference 1898 report, p. 435.

TIFFIN, Seneca Co. Supply from Sandusky River and seven 10-inch wells, 200 to 268 feet deep. Estimated population, 11,027. Estimated population accessible to mains, 8,800. Estimated population using water, 4,500. Average daily consumption, 750,000 gallons. Reference 1898 report, p. 441.

TIPPECANOE CITY, Miami Co. Supply from five 8-inch wells, 80 feet deep in drift. Estimated population, 1,727. Estimated population accessible to mains, 1,640. Estimated population using water, 1,590. Average daily consumption in 1900, 75,000 gallons. Reference 1900 report, p. 559.

TOLEDO, Lucas Co. Supply from Maumee River. Estimated population, 136,861. Estimated population accessible to mains, 110,000. Es-

timated population using water 84,000. Average daily consumption, 8,926,000 gallons. Reference 1898 report, p. 479.

TORONTO, Jefferson Co. Supply from the Ohio River. Estimated population, 3,615. Estimated population accessible to mains, 3,430. Estimated population using water 2,880. Average daily consumption, 550,000 gallons. Reference 1898 report, p. 520.

TROTWOOD, Montgomery Co. Supply from two 8-inch wells 26 feet deep. Estimated population, 220. Estimated population accessible to mains, 165. Estimated population using water, 60. Reference 1900 report, p. 559.

TROY, Miami Co. Supply from one 25 foot well, 31 feet deep and eighteen 8-inch wells 38 to 54 feet deep, in drift. Estimated population, 6,020. Estimated population accessible to mains, 5,700. Estimated population using water 5,500. Average daily consumption, 874,000 gallons. Reference 1900 report, p. 560.

UHRICHSVILLE, Tuscarawas Co. See Dennison.

UNION CITY, Darke Co. Supply from Union City, Indiana. Four 8-inch wells 160 feet and two 30 foot wells 29 and 34 feet deep. Estimated population, 1,280. Estimated population accessible to mains, 1,100. Estimated population using water, 1,000. Reference 1901 report, p. 462.

UPPER SANDUSKY, Wyandot Co. Supply from the Sandusky River. Estimated population, 3,333. Estimated population accessible to mains, 3,260. Estimated population using water, 2,000. Average daily consumption, 300,000 gallons. Reference 1898 report, p. 439.

URBANA, Champaign Co. Supply from one 20 foot well 30 feet deep and eight 6-inch wells 35 to 50 feet deep in drift. Estimated population, 6,868. Estimated population accessible to mains, 5,840. Estimated population using water 5,000. Average daily consumption, 1,250,000 gallons. Reference 1900 report, p. 561.

VAN WERT, Van Wert Co. Supply from nine 6-inch wells 200 feet deep, in limestone. Estimated population, 6,604. Estimated population accessible to mains, 5,300. Estimated population using water 3,290. Average daily consumption, 270,000. Reference 1898 report, p. 487.

VERSAILLES, Darke Co. Supply from three 8-inch wells, 30 feet deep in drift. Estimated population, 1,487. Estimated population accessible to mains, 1,110. Estimated population using water, 550. Reference 1900 report, p. 561.

WADSWORTH, Medina Co. Supply from three springs and from three 6-inch wells 40 feet deep, in rock. Estimated population, 1,783.

Estimated population accessible to mains, 1,430. Estimated population using water 1,100. Reference 1899 report, p. 707.

WAPAKONETA, Auglaize Co. Supply from eight 6-inch wells 35 feet deep, and one 6-inch well 142 feet deep. Estimated population, 3,945. Estimated population accessible to mains, 3,550. Estimated population using water, 2,100. Average daily consumption, 204,000 gallons. Reference 1898 report, p. 487.

WARREN, Trumbull Co. Supply from the Mahoning River filtered through Warren gravity mechanical filters. Estimated population, 8,785. Estimated population accessible to mains, 6,600. Estimated population using water, 4,750. Average daily consumption, 744,000 gallons. Reference 1898 report, p. 539.

WASHINGTON C. H., Fayette Co. Supply from two 6-inch wells 150 and 170 feet deep, one 8-inch well 160 feet deep, one 20 foot well 45 feet deep, one 30 foot well 45 feet deep and eight 8 to 12 foot wells, 40 to 65 feet deep. Shallow wells in drift, deep wells in rock. Estimated population, 5,753. Estimated population accessible to mains, 5,180. Estimated population using water, 1,810. Average daily consumption, 161,000 gallons. Reference 1901 report, p. 462.

WAUSEON, Fulton Co. Supply from two 8-inch wells 180 feet deep. Estimated population, 2,157. Estimated population accessible to mains, 1,620. Estimated population using water, 1,300. Average daily consumption in 1898, 45,000 gallons. Reference 1898 report, p. 488.

WAYNESBURG, Stark Co. Supply from two springs, impounded. Estimated population, 633. Estimated population accessible to mains, 370. Estimated population using water 320. Reference 1899 report, p. 706.

WAYNESVILLE, Warren Co. Supply from four 6-inch wells, 50 feet deep in drift and rock. Estimated population, 725. Estimated population accessible to mains, 570. Estimated population using water, 450. Average daily consumption, 10,000 gallons. Reference 1900 report, pp. 107 and 562.

WELLINGTON, Lorain Co. Supply from reservoir impounding surface water. Estimated population, 2,096. Estimated population accessible to mains, 1,670. Estimated population using water for domestic purposes none, for other use 50. Average daily consumption in 1900, 20,000 gallons. Reference 1901 report, p. 463.

WELLSTON, Jackson Co. Supply from Little Raccoon Creek; water impounded and stored. Estimated population, 8,412. Estimated population accessible to mains, 6,700. Estimated population using water, 3,-

150. Average daily consumption, 255,000 gallons. Reference 1898 report, p. 541.

WELLSVILLE, Columbiana Co. Supply from the Ohio River. Estimated population, 6,236. Estimated population accessible to mains, 5,900. Estimated population using water, 5,400. Average daily consumption, 1,250,000 gallons. Reference 1898 report, p. 521.

WEST ALEXANDRIA, Preble Co. Supply from four 6-inch wells, 65 to 132 feet deep in drift. Population 740. Estimated population accessible to mains, 700. Estimated population using water, 450. Average daily consumption, 35,000 gallons. Data for 1900. Reference 1900 report, p. 562.

WEST CARROLLTON, Montgomery Co. Supply from two 8-inch wells 65 feet deep in drift. Estimated population, 1,050. Estimated population accessible to mains, 950. Estimated population using water, 550. Reference 1900 report, p. 562.

WILLOUGHBY, Lake Co. Supply from infiltration well on Chagrin River. Estimated population, 1,860. Estimated population accessible to mains, 1,700. Estimated population using water, 1,250. Average daily consumption in 1898, 100,000 gallons. Reference 1898 report, p. 560.

WINTON PLACE, Hamilton Co. Supply from Cincinnati; Ohio River. Supplied as portion of city. Estimated population, 1,220.

WOODSFIELD, Monroe Co. Supply from Whittenbrooke Run, impounded and from Sunfish Creek. Estimated population, 1,878. Estimated population accessible to mains, 1,500. Estimated population using water 220. For complete description see page 480 of this report.

WOOSTER, Wayne Co. Supply from impounding reservoir on Christmas Run, Apple Creek and one 33 foot well, 47 feet deep. Estimated population, 6,079. Estimated population accessible to mains, 4,200. Estimated population using water, 2,080. Average daily consumption, 290,000 gallons. Reference 1899 report, p. 707.

WYOMING, Hamilton Co. Supply from four 8-inch wells 140 to 200 feet deep, in drift. Estimated population, 1,450. Estimated population accessible to mains, 1,300. Estimated population using water 840. Average daily consumption, 71,000 gallons. Reference 1901 report, p. 464.

XENIA, Greene Co. Supply from impounded spring and surface water, one well 75 by 75 feet by 25 feet deep, six 6-inch wells 28 to 40 feet deep and three 8-inch wells 28 to 40 feet deep. Estimated population,

8,830. Estimated population accessible to mains, 8,400. Estimated population using water, 5,500. Average daily consumption in 1900, 350,000 gallons. Reference 1900 report, p. 563.

YOUNGSTOWN, Mahoning Co. Supply from the Mahoning River. Estimated population, 46,051. Estimated population accessible to mains, 34,500. Estimated population using water, 20,000. Average daily consumption, 2,718,000 gallons. Reference 1898 report, p. 543.

ZANESVILLE, Muskingum Co. Supply from the Muskingum River. Estimated population, 23,791. Estimated population accessible to mains, 22,600. Estimated population using water, 17,500. Average daily consumption, 4,579,000 gallons. Reference 1899 report, p. 678.

VILLAGES SUPPLIED BY CLEVELAND.

Cleveland sells lake water by meter to many outside consumers among which are the villages of Collinwood, East Cleveland, Glenville, Lakewood, Newburg and South Brooklyn.

For East Cleveland, Newburg and Lakewood no information could be secured as to the extent of the local system or the number of users of the water.

COLLINWOOD, Cuyahoga Co. Estimated population, 3,900. There are 11.4 miles of mains in place in this village which, with their attending fire hydrants, meters, etc., cost \$95,000 or a per capita cost of \$24.36. It is reported that there are 225 services in use all of which are metered. The average daily consumption as reported by Cleveland is 8,400 gallons, which is very low, but the plant has just been completed and but few services have been in use for any length of time.

GLENVILLE, Cuyahoga Co. Estimated population, 7,000. It is reported that there are 22 miles of mains in this suburb with 90 per cent. of the people accessible to the same. There are 1,844 services in, with 1,503 of these in use and 125 metered. The average daily consumption is 345,000 gallons, which is 49 gallons per inhabitant, 57 per consumer, and 230 per service.

SOUTH BROOKLYN, Cuyahoga Co. Estimated population, 2,450. The distribution system for this village cost \$25,000 or \$10.20 per capita. It is reported that there are 102 services in, 88 of which are in use and all of these metered.

VILLAGES SUPPLIED BY CINCINNATI.

Cincinnati supplies, with Ohio River water, the suburbs of College Hill, Evanston, Hyde Park, Oakley and Winton Place, and recently arrangements were being made to supply Pleasant Ridge.

College Hill purchases by meter and owns and controls its own system, while Evanston, Hyde Park, Oakley and Winton Place are supplied as a portion of the city proper, with a slight modification of rates, compensation for fire protection, etc., for this lack of trouble. No separate data are available at this time as to the extent of the system in each village or the number of services in use in each.

WATER SUPPLIES PUT IN IN 1902.

ADA, Hardin Co. Estimated population, 2,675. The Ada Water, On July 22, 1901, a franchise was granted to the Newcomerstown Water Co., for the furnishing of a public supply to this village. The plant was put in operation in the summer of 1902, the supply being obtained from six 6-inch wells driven from 35 to 37 feet deep through clay and loam into a bed of sand and gravel lying along the Tuscarawas River, three-fourths of a mile east of the village.

The water is pumped direct to the mains and reservoir by two horizontal compound duplex Laidlaw-Dunn-Gordon pumps of 1,000,000 gallons capacity each. The reservoir is constructed of concrete on puddle, not covered, and has a capacity of 1,125,000 gallons.

It is located on a hill east of the village and at such an elevation as to give a pressure of 107 pounds on the streets. There are 6.48 miles of mains in use giving practically the entire population access to the water. It is reported that there are 137 services in use, 6 of which are metered. The average daily consumption is 250,000 gallons or 85 gallons per capita, 366 per consumer and 1832 per service. The industrial use of the water is quite large.

It is reported that the plant complete cost \$149,000 or a per capita cost of \$50.66. It is hard to see where the money was placed as this is certainly a large sum to spend for a works of this character.

OAKWOOD, Montgomery Co. Estimated population, 250. The citizens of this unincorporated settlement have installed during 1902 a complete water system for the supply of the several residences at a cost of \$10,000 or a per capita cost of \$40.00. The supply is obtained from one 6-inch well driven 50 feet into drift, the water being obtained from a

stratum of sand and gravel. The water is pumped to an elevated tank of 50,000 gallons capacity by a power pump of 350,000 gallons capacity, operated by a gasoline engine. There are 1.61 miles of mains in and 26 services, 24 of which are in use and none metered. The average daily consumption is 10,000 gallons, or 40 gallons per capita, 91 per consumer, and 417 per service.

WOODSFIELD, Monroe Co. Estimated population, 1,878. In 1901 a private company started to install a waterworks for this village, the supply to be obtained by impounding the runoff of Whittenbrooke Run, but the construction was delayed until it was too late to fill the reservoir and the water of Sunfish Creek had to be pumped to the village. No data are available as to the details of the plant beyond that there have been 45 connections made to the mains.

NEW SUPPLIES IN PROCESS OF CONSTRUCTION.

ADA, Hardin Co. Estimated population, 2,675. **The Ada Water, Heat and Light Co.**, proposes to supply this village with water from four 8-inch wells drilled 152 feet deep through 25 feet of clay and soil, five or six feet of gravel, and the balance of limestone. The wells are located in the eastern part of the village fairly well removed from local influences. The water will be pumped direct to the mains by two horizontal, compound, duplex Deane pumps of 750,000 gallons capacity each. The heating plant will have two horizontal, compound, duplex Laidlaw-Dunn-Gordon pumps of the same capacity which also can be used on the water supply if necessary. It is intended to install about 3.0 miles of mains which will cover the village fairly well.

CANAL FULTON, Stark Co. Estimated population 1,172. This village will be supplied with water from a number of springs by a private company which has secured the franchise.

COLUMBUS GROVE, Putnam Co. Estimated population, 1,986. The village is installing a public waterworks here, the supply to be obtained from wells drilled into the limestone found a short distance below the surface.

FREEPORT, Harrison Co. Estimated population 693. This village is attempting to secure a supply of water from the sandstone underlying a hill north of the village.

GENEVA, Ashtabula Co. Estimated population, 2,371. It is proposed to supply this village with water from Grand River, after the same has been purified in an acceptable manner.

LOUDONVILLE, Ashland Co. Estimated population, 1,608. This village will shortly be supplied with excellent water from two 10-inch wells 56 and 58 feet deep respectively. The wells are located in the western part of the city near the Rocky Fork and obtain their supplies from a deep bed of gravel and sand lying below 12 feet of soil and 12 feet of clay. The water will be pumped to a 270,000 gallon covered concrete reservoir by a horizontal, compound, duplex Snow pump of 750,000 gallons capacity. There are 6.50 miles of mains in, giving some 95 per cent. of the people access to the water. The plant is being put in by the council at a cost of about \$25,500.

MANTUA, Portage Co. Estimated population 756. This village will be supplied from three 6-inch wells drilled about 60 feet deep into the sand and gravel bed in the valley of the Cuyahoga River. The water will be pumped direct from the wells to a reservoir.

MT. GILEAD, Morrow Co. Estimated population, 1,568. A private company is developing a public supply for this village from a deep-lying gravel bed below a thick stratum of blue clay found near the center of the village.

NEW BREMEN, Auglaize Co. Estimated population, 1,333. This village will be supplied with water from three 6-inch wells drilled about 100 feet deep through 76 feet of clay and gravel and into limestone.

NEW VIENNA, Clinton Co. Estimated population, 800. This village intends to put in a waterworks with the supply to be obtained from the gravel just above the Niagara limestone, found at 60 feet, or from the shale below this rock. This water was developed in the southeast portion of the city by an old gas well. When not being pumped the water flows with a small head.

PAULDING, Paulding Co. Estimated population, 2,100. A public supply has been developed for this village from the limestone found just below the drift by means of three 8-inch wells from 320 to 616 feet deep. The wells are located in the northern part of the village at a point free from local pollution and the rock is well protected by about 25 feet of clay.

PLEASANT RIDGE, Hamilton Co. Estimated population, 950. This village has arranged for a public water supply from the Ohio River through the Cincinnati works.

PLYMOUTH, Huron and Richland Cos. Estimated population, 1,158. A water supply has been furnished this village from wells drilled into the Berea sandstone found just below a thin stratum of clay in the north-eastern part of town. There have been 3.8 miles of mains laid, covering

nearly the entire village, and it is reported that 20 service connections have been made.

WESTERVILLE, Franklin Co. Estimated population 1,489. This village has received a supply of water from four 8-inch wells drilled 175 feet deep through 55 feet of soil and clay, 15 to 17 feet of gravel, and the balance in shale. The water is found in the gravel and seems to be of excellent quality. The water will be pumped to air-compression tanks as a means of furnishing the pressure when the pumps are not running.

WEST MILTON, Montgomery Co. Estimated population 926. A large spring southwest of the village is being developed for the supply of this village.

SUMMARY.

The sources of supplies of the new water supplies just described have been collected in the following table.

TABLE III.—CLASSIFICATION OF NEW SUPPLIES.

Surface	Ohio River	{ Evanston Hyde Park. Oakley Pleasant Ridge Winton Place
	Interior streams and lakes.	{ Collinwood East Cleveland. Geneva Glenville Lakewood Newburg South Brooklyn Woodsfield
Ground	Sub-surface	{ Canal Fulton Columbus Grove Freeport West Milton
	Deep-seated	{ Ada Loudonville Mt. Gilead New Bremen. New Comerstown New Vienna Oakwood Paulding Plymouth Westerville
Surface and Ground	Surface and deep-seated.	{ Mantua.

In all there are twenty-nine towns containing 59,060 people, having new supplies. Of these thirteen have surface supplies, ten have ground supplies and one has a surface and ground supply.

Of these plants, five are owned by private companies and twenty-four by the cities and villages. In Table IV there is given certain information in regard to the franchises granted to the private water companies by the respective cities and villages.

TABLE VI.—FRANCHISES OF PRIVATE WATER COMPANIES.

Town	Name of Water Co.	Date of granting franchise	Duration of franchise in years.	Purchasing Clause.	Water Rates.	Kind of Water to be Supplied.
Ada	Ada Water, Heat and Light Co.	1902	25	At end of fifteen years by arbitration.	Rates fixed in franchise.	Not specified.
Canal Fulton	The Canal Fulton Water Works Co.	March 3, 1902	20	No purchasing clause.	Rates fixed by Co.	Not specified.
Mt. Gilead	Water Works, Electric Light, Heat and Power Co.	Sept. 4, 1900 & Nov. 1, 1901	20	At end of five years and annually thereafter.	Rates fixed in franchise.	Good, potable water
New Comerstown..	New Comerstown Water Co.	July 22, 1901	20	At end of ten years and every five years thereafter.	Rates fixed in franchise.	Good, wholesome water.
Woodsfield	The Woodsfield Water Co.	April 1, 1901	20	No purchasing clause.	Rates not fixed in franchise.	Not specified.

In four of the companies the franchises run twenty years and in the other one twenty-five. In three cases there is a purchasing clause in the franchise, while two are silent in this important respect. In three cases the rates are fixed in the franchise, in one case they are fixed by the company, and in one the rates are not mentioned in the franchise.

In three cases out of five the kind of water is not specified, which is a fact greatly to be deplored.

SEWERAGE.

The report for 1901 contained a table (Table VII) describing the sewer systems of a number of towns. Table V will endeavor to give the same facts about the new sewer systems of the state so that a fair idea of the extent of these systems can be readily obtained.

TABLE V—SEWERAGE OF TOWNS.

Place.	Population.	Kind or System of Sewers.	Method of Disposal.
<i>a</i> Ada	3,000	Combined	Dilution
Deshler	2,000	Sanitary	Dilution
Galion	7,282	Separate	Dilution
Glenwood Children's Home.	30	Private	Filtration
Loudonville	1,581	Combined	Dilution
Nelsonville	6,000	Sanitary	Dilution
<i>b</i> New Matamoras	1,000	Sanitary	Dilution
Norwalk	8,000	Sanitary and storm.	Dilution
Payne	1,600	Combined	Dilution
<i>c</i> Plain City	1,700	Separate	Septic tanks and intermittent filtration.
Wapakoneta	4,500	Separate	Sewage disposal plant.
<i>d</i> Washington Co. Infirmary ..	90	Private	
Washington Court House...	5,751	Combined	Septic tanks and coke contact beds.
Waterville ..	703	Combined	Dilution
<i>e</i> Westerville	1,462	Separate	Septic tanks and intermittent filtration.
Wyoming	1,600	Combined	Dilution

*a*Connection of closets and sewage disposal being considered.

*b*No data available as to number of vault and closet connections.

*c*In process of construction.

*d*Sewage disposal plant being constructed.

*e*New system.

TABLE V.—SEWERAGE OF TOWNS.

Outlets for Sewers or Surface Drains.	Number of Miles of Sewers.	Per cent. of Population Accessible to Sanitary, Combined or Private Sewers.	Number of Closet or Vault Connections to Sewers, Including Private Sewers.	Estimated Population Using Sewers.	Per Cent. of Total Popu- lation Using Sewers.	Does the Sewage Cause a Nuisance.
Creek	6.00	5	None.	.....	60	Very slight.
Brush Creek ..	.....	.....	.....	.....	.....	.....
Whetstone Cr'k.	2.82	30	300	1,600	22	Great nuisance.
Ravine .....	.14	100	4	.....	.....	.....
Black Fork ...	.....	38	.....	500	32	.....
Hocking River.	4.00	60	200	1,500	25	No.
Ohio River	1.50	100	.....	500	50	No.
Creek and river.	12.00	80	.....	5,000	62½	Not serious.
Flat Rock Cr'k.	.50	70	None.	600	40	No.
Big Darby Cr'k.	3.00	60	.....	.....	.....	.....
Auglaize River	2.00	30	100	1,500	3	No.
Small Run.....	.06	.....	5	90	100	No.
Paint Creek ...	3.50	.....	75	.....	.....	.....
M. & E. Canal	.20	.....	None.	100	14	.....
Alum Creek ...	4.60	75	.....	.....	.....	.....
W. F'r'k Mill C'k	1.75	30	160	200	12½	Very slight.

ADA. Population 3,000. This town desired at first to put in an addition to its former system of sewers; but as this same former system was in a very bad shape and as a new water supply was being put in, it was concluded by all that it would be best to put in a sanitary system of sewers with a sewage disposal plant, and this last feature is being installed at present. There are 6.0 miles of sewers and 60 per cent. of the population are using them.

DESHLER. Population, 2,000. It has put in a sanitary system of sewers with three pumping stations and with an outlet into Brush Creek.

GALION. Population, 7,282. This town has a separate system of sewers 2.82 miles in length emptying into Whetstone Creek. There are 300 closet or vault connections to the sewers and 22 per cent. of the population are using them. A very great nuisance is caused.

GLENWOOD CHILDREN'S HOME. This home has 30 inmates and has a small system of private sewers 250 yards in length. Four closets, three baths, a laundry, and a kitchen sink are connected with this sewer and a new reduction plant has just been put in, with two sand filters 20x20x4 and a 1,000 gallon receiving tank with flushing gates. The filter beds are used on alternate days, and there is no nuisance whatever.

LOUDONVILLE. Population 1,608. This town has just put in a water supply and the need of a sewer system was therefor felt more than ever before, so it was proposed to put one in in the business district, including three blocks of houses and stores or about 70 in all, representing some 350 people or maybe 500 including the floating population. There will be a temporary outlet to the Black Fork below the town at a point where it will be feasible to put in a sewage disposal plant if necessary. The drainage area of the Black Fork at Loudonville is 344 square miles which should give flow enough to care for the sewage of this district without causing a nuisance.

NELSONVILLE. Population, 6,000, has a new storm sewer which is to carry the flow of a run which has heretofore been the receptacle for filth of all kinds, including house drainage and garbage, and it was proposed to change this section, 750 feet, into a storm sewer so as to prevent such a use of the run before it caused a considerable nuisance. Nelsonville has also sanitary sewers emptying into the Hocking River.

NEW MATAMORAS. Population, 1,000. A complete system of sanitary sewers has been put in at a cost of \$3,000. This system includes 1.6 miles of 6, 8, 10 and 12-inch tile sewer with a 24-inch cast iron outlet

to the Ohio River opposite the lower end of the village. Practically the whole village has access to the sewers though only twelve connections had been made July 31, 1902, but the system was only completed during that month.

NORWALK. Population, 8,000. It had a few sanitary and storm sewers but these were not sufficient in number and also caused a nuisance by some of them emptying into a ditch in the town. The new outfall sewer is to carry storm water and sewage also, but it will do away with former nuisance by carrying the sewage to a ravine one-third of a mile from the nearest house. A private sewer empties here also and there will no doubt be a nuisance but it will at least be removed from the town until something better can be provided.

PAYNE. Population, 1,600. It has an area approximately a mile square, is remarkably level, and is covered with a black heavy soil very retentive of water. None of the streets are paved. It has put in a combined system of sewers, one-half a mile long, emptying into Flat Rock Creek. There are no closet connections as yet and only 40 per cent. of the total population are using the sewers at all so there is no nuisance as yet.

PLAIN CITY. Population, 1,700. This town is putting in a separate or sanitary system of sewers, three miles in length, to be used for sewage only. The sewage purification is to be accomplished in masonry tanks large enough to hold a twelve hours flow, followed by aeration, and then by the intermittent treatment in contact beds working in a series of three. Big Darby Creek will receive the effluent.

WAPAKONETA. Population, 4,500. About 500 had use of the water closets as was determined by the 114 in use and a great nuisance was caused. A separate system has now been provided for with a sewage disposal plant, the effluent to empty into the Auglaize River.

WASHINGTON COUNTY INFIRMARY has 90 inmates. Formerly the sewage and waste water emptied into a run flowing past the institution into Duck Creek nearly a mile below. This run was often dry and caused a nuisance. A sewage disposal plant has been put in consisting of a septic tank and two contact beds with a capacity of 3,700 gallons. The efficiency of the former will be tried first and the latter added only when necessary.

WASHINGTON COURT HOUSE has a population of about 5,751. Its surface drainage was to Paint Creek which flows practically through the center of the corporation. There were four storm sewers with a total length

of 1.08 miles and three combined sewers with a length of 1.36. There were also four sanitary sewers with a length of 0.71 miles. There were about 75 closet connections and a nuisance was caused the greater part of the year as there was not enough water to care for the sewage by dilution. It now has a combination storm water and sanitary sewer system with an outlet for storm water about 2,000 feet below the edge of the more thickly populated districts. The sewage is to be purified by the septic treatment followed by coke contact beds; 400,000 gallons per acre per day are to be disposed of.

WATERVILLE. Population, 703, has put in a six and eight-inch sewer for combined drainage of cellars and storm water. The sewer is 1,010 feet long and will discharge into the Miami and Erie Canal. This sewer is desired principally for storm drainage but connections will be run to neighboring houses for cellar and sink drainage. There are about twenty houses connected with the sewer but no water closets as there is no public water supply.

WESTERVILLE. Population, 1,462. This town has just put in a sewer system costing \$20,000. It is a separate or sanitary system 4.7 miles in length, culminating in a sewage disposal plant in which septic tanks and intermittent filtration are used. The effluent goes to Alum Creek.

WYOMING. Population, 1,600. Has put in a combined system of sewers but as yet it has no sewage disposal plant, which fact is to be all the more lamented as the sewers empty into Mill Creek which is so very badly polluted already. There are one and three-fourths miles of these sewers to which 30 per cent. of the population have access and it is estimated that 200 or 12.5 per cent. of the people use them. There are 160 closet or vault connections and a slight nuisance is caused.

The total population of these 16 towns is 46,299. Ten of the sixteen care for their sewage by dilution, the other six having sewage disposal plants.

The average mileage of the sanitary, separate and combined sewers is three miles.

The average per cent. of the population accessible to the sewers is 56.5.

The average number of people using them is 1,159. The average per cent. of the population using the sewers is 38.

In four towns out of the sixteen the sewage causes a nuisance.

As in the previous compilations of this kind which have been made before in Ohio it may be seen that but a small per cent. of the total population has access to the sewers and a still smaller per cent. use them.

As stated in the report on water supplies it is very difficult to get satisfactory statistics regarding the water supplies from the various towns of the state and the same difficulty has been experienced in obtaining any account of the sewer systems. Oberlin again is taken as an example of well kept books as may be seen in Table VI.

TABLE VI.—STATISTICS REGARDING THE

	1895.
Estimated population	4,600
No. of connections with sewers.....	249
Estimated population using sewers	2,000
Trunk Sewer.	
Total length of trunk sewer	2 miles.
Cost of trunk sewer.....	\$10,500 00
Sinking fund	
District Sewers.	
Total length of district sewers	6 miles.
Cellar Drains.	
Average cut of trenches.....	8.2
Average cost per mile (exclusive of engineering).....	\$3,000
System extended	460 feet.
Sewer Farm.	
Total area	20 acres.
Available for sewage disposal—	
(a) Underdrained for filtration	2½ acres.
(b) Used for broad irrigation	2¾ acres.
Cost of land	\$1,500
Cost of preparing farm to date.....	\$519
Operating expenses for year.....	\$367
Additional construction for year.....	\$180
Average amount of sewage disposed of daily.....	70,000 gals.
Average amount of sludge deposited in sludge pits daily.....	270 gals.

SEWER SYSTEM OF OBERLIN, OHIO. ,

1896.	1897.	1898.	1899.	1900.	1901.
4,600	4,700	4,800	4,800	4,800	4,800
313	404	443	485	516	552
2,400	2,600	2,700	2,800	2,800	2,800
2 miles	2 miles	2 miles	2 miles	2 miles	2 miles
\$10,500	\$10,500	\$10,500	\$10,500	\$10,500	\$10,500
.....	\$11,000	\$10,000	\$10,000	\$8,000	\$8,000
.....	\$546.02	\$584.83	\$1,571.77	\$51.34	\$558.30
6 miles.	6.4 miles.	7 miles.	8 miles.	8 miles.	8 miles.
8.2	8.2	8.2	9.2	8.2	8.2
\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
4,722 ft.	1,356 ft.	1 mile.	1 mile.	None.	None.
20 acres	20 acres	20 acres	20 acres	20 acres	20 acres
3½ acres	3½ acres	3½ acres	3½ acres	3½ acres	3½ acres
1¾ acres.	1¾ acres.	1¾ acres	1¾ acres	1¾ acres	1¾ acres
\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
\$700	\$840	\$990	\$435.61	\$990	\$990
\$140	\$460	\$567	.....	\$380	\$432
\$510	\$150	.....	.....	.....	.....
75,000 gals.	75,000 gals.	80,000 gals.	80,000 gals.	80,000 gals.	100,000 gals.
300 gals.	300 gals.	325 gals.	325 gals,	325 gals,	.....

As the populations of the towns increase the necessity for sewage disposal plants is being more and more felt and there are now twelve municipal plants in the state and the same number of institutional. The data in reference to these plants have been tabulated in Table VII in such a manner that with a few additional notes it is believed a fair idea of these plants can be obtained. A few of these plants have been put in during the present year and these are described in detail as follows:

DELAWARE. Population, 9,000, is at present putting in a disposal plant. It has about 9.5 miles of sanitary sewers which have been emptying into the Olentangy River.

The sewage is to be disposed of by septic tanks and downward intermittent filtration, the effluent going to the Olentangy. The plant which has been in the process of construction during 1902 and 1903 has cost \$14,500; \$2,500 being the cost of the site and \$12,000 the cost of construction; 1,445 Y branches have been put in.

MANSFIELD has a population of 18,000. It has 25 miles of sanitary sewers and 60 per cent. of the total population have access to them but only about 6,000 use the sewers draining to the disposal plant. The sewage is purified by the septic tank and contact bed treatment. The maximum amount of sewage treated per minute is 841 gallons and the minimum is 641.

There are four septic tanks holding 1,000,000 gallons each, they are concrete with groined brick arches. The septic tanks have a regulation to maintain a constant flow through them but this regulation does not seem to be perfect.

The sewage was turned on in April, 1902, but has been running steady since June 1st. During heavy rains some of the sewage is by-passed to keep mud out of the septic tanks. The by-pass has been used for from ten to twelve hours during heavy storms when the creek goes up. The effluent from the contact beds appeared perfectly clear, much clearer and apparently better than the creek water where the effluent finally goes.

XENIA. Population, 10,000, has three miles of sanitary sewers. Only ten per cent. of the people have access to these and as yet there are only five or six taps draining to the disposal works. The sewage is disposed of by intermittent filtration. The site of the disposal plant cost \$3,000 and the construction has cost the same amount. The plant was commenced in 1901 but the construction of laterals has been delayed on account of legal and other causes and the plant has not yet been put in operation. There are only six connections as yet and the effluent goes to Shawnee Creek.

THE MAHONING CO. CHILDREN'S HOME has 25 inmates. It has a sanitary system of sewers to which all the inmates have access and all

of them use the sewers going to the disposal works. One thousand gallons of sewage reach the works daily. The sewage is disposed of by intermittent filtration. The plant was installed in January, 1902, and its construction cost \$600. The sole cost of operating it is the time of the superintendent to change the valve. The effluent goes to a run and then to Mill Creek.

It may be seen from Table VII that there were several places which failed to answer repeated letters and therefore the information concerning them is very meager, several of those that did answer showed a great lack of knowledge of facts about their own cities and institutions.

Of the twenty-four cities and institutions having sewage disposal plants, fourteen have sanitary sewers; this includes all the twelve institutions; eight have separate systems, one has a combined and the other, Kenton, we have failed to hear from at all.

Intermittent filtration seems to be the favorite process of disposing of the sewage, there being 14 cities and institutions using this method. The remainder use septic tanks and contact beds, with the exception of the Hardin County Infirmary which uses sub-surface irrigation.

Only one, Oberlin, which was built in 1893 was installed previous to 1896, the remainder being built between that year and 1902, so sewage disposal plants—in Ohio at least—seem to be of very recent date.

It has been so difficult to obtain any figures as to the cost of building or operating these plants that no correct estimate of the average cost or cost per capita can be made.

TABLE VII.—SEWERS

City or Institution	Total population.	Kind or system of sewers.	No. of miles of sanitary or combined sewers.	Percent of total population accessible to sewers.	Population using sewers draining to disposal works.	Averaged daily quantity of sewage reaching works.	Maximum quantity of sewage reaching works.	System of Purification
Alliance.....	9,100	Separate	15.00	80	2,500	500,000		Chemical precipitation
Canton.....	31,000	Separate	18 30	60	10,000	1,900,000		
Clyde.....	2,530	C'mb'n'd	2.75			75,000		Intermittent filtration.
East Cleveland...	3,890	Separate	21.00	90	3,500	200,000	250,000	Septic treatment, aeration and double filtration.
Fostoria.....	7,800	Separate	23.00					
Glenville.....	6,000	Separate		65		200,000		Filtration and chemical precipitation, coke contact treatment.
Kenton.....	6,900							
Lakewood.....	3,500	Separate						Septic treatment and contact bed.
Mansfield.....	18,000	Sanitary	25.00	60	6,000	923,040	1,211,040	Septic and contact bed treatment.
Oberlin.....	4,000	Separate	10.00	75	2,800	200,000	300,000	Intermittent filtration and irrigation.
Shelby.....	4,900	Separate	15 00	90	1,300	200,000	300,000	Septic treatment and intermittent filtration.
Xenia.....	10,000	Sanitary	3.00	10	30			Intermittent filtration.
Boys' Industrial School.....	913	Sanitary		100	913	100,000	112,000	Intermittent filtration.
Fairmont Children's Home.....	125	Sanitary		100	125	15,500		Septic treatment, contact bed treatment and double filtration.
Gallipolis State Hospital, Insane	225	Sanitary		100	225	20,000		Intermittent filtration.
Gallipolis State Hospital, Gen'r'l	780	Sanitary		100	780	200,000		Intermittent filtration.
Hardin County Infirmary.....	95	Sanitary		100	95	4,000		Sub-surface irrigation.
Mansfield Reformatory.....	404	Sanitary		100	404	43,000		Intermittent filtration.
Massillon State Hospital.....	829	Sanitary		100	829	80,000		Intermittent filtration and irrigation.
Montgomery County Infirmary	427	Sanitary		100	427	12,000	16,000	Intermittent filtration.
Mahoning County Children's Home..	25	Sanitary		100	25	1,000		Intermittent filtration.
Shepardson College.....	100	Sanitary	.33 $\frac{1}{3}$			2,000		Intermittent filtration.
Toledo State Hospital.....		Sanitary						Intermittent filtration.
Trumbull County Infirmary.....	82	Sanitary		100	82	2,500	3,000	Septic treatment and intermittent filtration.
Wayne County Children's Home	56	Sanitary		100	56	1,800	2,000	Intermittent filtration.

AND SEWAGE DISPOSAL.

Date of installation.	Cost of site.	Cost of construction.	Repairs and maintenance	Operation.	Total repairs, maintenance and operation.	Cost of running per capita of total population.	Cost of running per capita of population using.	Stream receiving effluent.	Connections.	Remarks.
July 1896	\$2,150.00	\$22,167.18	.....	\$1,740.70	.....	.19	.70	Mahoning R.	540	
	4,100.00	31,972.24	.....	3,082.80	.....	.10	.31	Raccoon Ck.	1618	
		3,000.00	.....	120.00	.....				100	
Nov. 1899	12,500.00	4,000.00	\$1,500	4,000.00	\$5,500	\$1.41	\$1.57	Hayden Bk.	935	
										(1)
May 1899				2,063.72					500	(1)
										(1)
										(1)
April 1902								Creek.		(1)
1898	20.00	990.00	250	.....	250	.06 $\frac{1}{4}$	.09	Plum Ck.	623	
Nov. 1900	2,500.00	3,900.00	.....	Rent of farm.	.....			Black Fork of the Mohican.	250	
1901	3,000.00	3,000.00	.....	1 man	.....			Shawnee Ck.	6	(2)
Nov. 1899	On scho'l farm.	8,900.00	.....	5 boys $\frac{3}{4}$ hrs. we'k	.....			Small Run to Hocking R.		
1900	On home farm.		.....						
May 1898	On farm.	700.00	.....	P'rt time of 1 man.	.....			Mill Creek to Ohio River.		
Nov. 1899	1,126.25	12,474.00	.....	\$35 per month.	.....				
	On infirmary farm		.....					County tile to Scioto River.		
Nov. 1896	On farm.	(8)	.....	Time of one boy.	.....			Rocky Fork of the Mohican.		
	On farm.		.....					Small ditch to Tuscarwas R.		
	On farm.		.....					Run to Miami River.		
Jan. 1902	.....	600 00	.....	(4)	.....			Run to Mill C.		
	On farm.		.....					Young's Run to Mahoning.		(1)
	On farm.		.....					Young's Run to Mahoning.		(1)
June 1899	On farm.		.....					Christm's Run		
Oct. 1900	On farm.	1,500.00	.....	(5)	.....				

1. Failed to answer letters.
2. Plant not in operation yet.
3. Not obtainable, prison labor.
4. Time of superintendent to change valve.
5. A day's work per month.

STREAM GAGING.

During 1902 that branch of our work known as gaging advanced rapidly, several new gages being installed. In regard to the old gages which have been spoken of in other reports, that at Mexico was abandoned after giving two years' readings for which it was possible to prepare a fair discharge curve. While the Fremont station on the Sandusky was maintained for two years and four months no reliable rating curve could be secured owing to the erection of a small boulder dam below the station and to changes in the gaging section by the erection of a new bridge.

The Waterville gage gave three years and two months service and was only abandoned after it was found that the low flows were not reliable from the difficult section and from the diversion of water for the Miami and Erie Canal. For the average flow at the station a very fair record was obtained.

The Columbus gages on the Scioto and Olentangy are still maintained by the Board and it is believed that fairly satisfactory results were secured except for slight discrepancies for short periods due to the variation of the length of the wire gage on the Scioto and to the lifting of the post gage on the Olentangy. These difficulties have been overcome and it is believed that no further trouble will be experienced with these stations.

During the latter part of 1902 the Hydrography Division of the Geological Survey extended their work in this section. The work is still in connection with the State Board of Health though now the bulk of it is done by the government instead of as formerly being done by the state.

In November, 1902, gages were established on Jonathan Creek at Powells, on Licking River at Pleasant Valley, on the Ottawa River at Lima, and at Ottawa on the Blanchard River. It is intended to extend this work until every section of the state shall have gages on one or more of its streams.

During January, 1903, sites for gaging stations were located on the Black River at Elyria, on the Cuyahoga River at Cleveland, the Mahoning River below Youngstown, Cross Creek near Mingo Junction, McMahon Creek above Bellaire, on the Auglaize, Maumee, and Tiffin Rivers

near Defiance, and sites will be secured on either Mosquito or Meander Creek at Niles and on the Little Miami River in the vicinity of Morrow. It is intended to place these gages as soon as possible so as to secure records of the spring floods.

As for the four gages which have but recently been established no discharge data are as yet available, it requiring practically a whole season, including the periods of high and low water, to secure satisfactory results.

The water works trustees of Lima have already seized the opportunity to participate in the benefits of this work and are now furnishing daily gage heights of the Ottawa River, the Survey doing the balance of the work, which, by the way, is much the major portion. Lima intends to make use of this stream for a public water supply and is very properly much interested in knowing its daily flow.

The Columbus authorities have made extensive use of the results obtained from the local work. The few gagings made have enabled them to figure with some confidence upon the storage problem which now confronts them. Toledo has used the discharge data of the Maumee in its recent study of the water question.

Every reliable project contemplating the use of surface water, either direct from the stream or by storage, must include studies of the flow of the stream so that there may exist no reasonable doubt but that when the structures for its development are completed there may be sufficient water at hand to supply them. In all storage problems the variation of the run-off, from month to month must be estimated so that an adequate reserve supply may be provided for the time when the flow is too low for the supply needed.

In streams where the water is to be used direct without storage the minimum flow must never fall below the maximum consumption as they both may frequently occur at the same time. In questions of water power it is absolutely essential to the success of the enterprise to know how many horse-power are available for the months of minimum flow and if this is not sufficient for the work required the proper storage or auxiliary power must be installed to bring this minimum up to the requirement.

Cleveland now desires gagings of the Cuyahoga River for use in connection with its study of its sewage disposal problem. Questions of sewage disposal by dilution hinge upon the low flows of the streams in use. There is probably no city sending so much sewage to a stream that a nuisance is caused at all times. It is the low flows of the summer and fall which cause the trouble and complaint. It would be an interesting study to take up, this determination of just how much sewage our streams are able to care for without causing a nuisance.

It is not thought advisable at this time to give data on the low flows which have been obtained as sufficient work has not been done for general

conclusions and the results might be misleading, but suffice it to say that many monthly records of the streams named above have given run-offs of from .01 to .02 cubic feet per second per square mile of drainage area. This is from ten to five times less than was expected from the records of eastern streams. It throws our streams nearer the classification in which the western streams are placed and as the land is being cleared and these cleared portions ditched and tiled this extreme variation in flow will increase. There are many streams over the state which are practically dry now in the summer and fall which formerly maintained quite respectable flows during this dry season.

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